The RUBBER AGE

VOL. 30, NO. 5 DECEMBER 10, 1931

LATE NEWS of the Industry

Tire Prices Cut from 5 to 19 Per Cent As Many Manufacturers Protest Action

THE beginning of the month saw reductions in tire prices by practically every domestic manufacturing company, accompanied by protests from several leaders in the industry over the necessity for such action at this time. The prices range from 5 to 10 per cent on first line passenger car casings to 15 per cent on inner tubes and 19 per cent on truck tires.

Newspapers had previously reported several meetings of rubber company executives in Akron and Cleveland for the purpose of discussing the price situation and attempting to avert any general reductions, while at least one leader in the industry, W. O. Rutherford, president of the Pennsylvania Rubber Company, had urged an upward revision as a beneficial move. Banking interests were reported to have sought to have price levels maintained without change.

The first public announcement was made November 25 by the Lee Rubber & Tire Corporation, although it was stated that at least one of the larger manufacturers had definitely decided on the step before that date. The other companies followed on December 1 and the next few days, practically every factory in the country revising its schedules to lower levels. The Atlas Supply Company, which supplies Standard Oil companies with tires, also reduced prices from 10 to 15 per cent, and it is expected that the mail order houses of Sears, Roebuck & Company and Montgomery Ward & Company will shortly follow suit.

Most comments accompanying the price cut announcements describe the action as "following" such moves on the part of other companies. The Firestone Tire & Rubber Company points out that it is only "meeting downward revisions of other companies," and J. D. Tew, president of the B. F. Goodrich Company, notes that his firm's action is taken "following similar reductions by other companies." Many smaller manufacturers, however, strongly denounced the need for such action, and one newspaper report states that certain company executives are considering asking for an inquiry by the Federal Trade Commission.

"We have reluctantly become competitive," declared F. C. Millhoff, vice-president of the Master Tire & Rubber Corporation. "There was nothing left for us to do but to cut our prices to meet those of competition. I do not believe that a cut in prices ever stimulates business. On the contrary, it retards business."

C. W. Seiberling, vice-president of the Seiberling Rubber Company, deplored the cut and called it "a poor effort at solution of the industry's problems." Charles Borland, president of the Mohawk Rubber Company, was reported by newspapers to have typified the reductions as "asinine" and to have said, "It is wholly unnecessary, even though we are forced to go along."

President Rutherford of Pennsylvania issued a long statement in which he asserted the action "will entail a

Scanning the Headlines

Tire prices are cut to new low levels, with smaller manufacturers protesting the move . . . . FIRESTONE is reported to be interested in buying Fisk . . . . Crude rubber again drops near its previous bottom . . . . SEIBERLING shows profit for year as against 1930 losses . . . . Rubber chemists prepare for Xmas Party of New York Group on December 16 . . . . RAYBESTOS-MANHATTAN reports reduced earnings . . . . Rubber footwear dealers show somewhat lower tennis shoe stocks . . . . SWAN RUBBER reorganizes and prepares to expand line . . . . Rubber goods exports drop slightly in October . . . . CHEVROLET improves its rubber mounting system, adopts larger tire section . . . . Malayan output and shipments continue to increase despite depressed prices . . . . WOOSTER RUBBER experiences third fire in two years . . . . Russia ready to open huge tire factory . . . . GOODRICH shifts sales divisions . . . . Securities decline further, and cotton turns weaker.

continuance of human suffering, resulting in a reduced number of workers, shortened hours, also salary and wage cuts," and again declared that the only check-rein is rising prices.

Dealers Show Lowered Inventories Of Canvas Rubber-Soled Footwear

STOCKS of tennis shoes in the hands of dealers in the United States on November 1 showed a slight decline from that date last year, according to the third annual survey which has been completed by the Rubber Division of the Department of Commerce. Reports from 18,289 dealers, covering the entire country, show total stocks of canvas rubber-soled shoes as 2,586,381 pairs, an average of 141.4 pairs per dealer, which is a reduction of 6.2 pairs per dealer from the average of 147.6 on November 1, 1930. On that date, 18,200 dealers reported inventories of 2,685,889 pairs on hand.

In the present survey, as in the previous ones, dealers were asked to report their stocks of tennis shoes under various price ranges. Details received in the questionnaires indicate that the importance of low prices tennis shoes in the average dealer's stock is increasing. The survey shows that this year's average stock of 141 pairs comprised roughly 68 pairs costing the dealer less than $0.75 per pair; 33 pairs costing $0.76 to $1.00; 21 pairs costing $1.01 to $1.50 each; 12 pairs costing above $1.50 and 7 pairs of specialty oxfords and pumps. Last year an approximate division of the average stock of 147 pairs showed 57 pairs under $0.75; 38 pairs from $0.76 to $1.00; 29 pairs from $1.01 to $1.50; 16 pairs over $1.50 and 7 pairs of special oxfords and pumps.

A separate tabulation was made of those reports in which total stocks amounted to more than 500 pairs each. In the present survey there were 472 dealers in this group having total stocks of 834,529 pairs of tennis shoes or an average of 1,768 pairs per dealer. This compares with 539 such dealers having 971,890 pairs or an average of 1,803 pairs per dealer on November 1, 1930.

The total mailing list used in this survey consisted of 120,295 names. In addition to the 18,289 reports submitted by dealers with stocks on hand as of November 1, 1931, reports were received from about 9,000 dealers stating either that they no longer sold tennis shoes or that they had no stocks on hand at the present time. The Post Office Department returned 2,000 envelopes addressed to dealers owing to failure to locate or because of improper address.

The term "tennis shoes," as used in this survey, embraces practically all classes of canvas rubber-soled footwear, including gymnasium, basketball and other sport or utility shoes of canvas or other cloth uppers and rubber solings.

Raybestos-Manhattan, Inc., Reports Nine Months' Profits of $666,135

RAYBESTOS-MANHATTAN, Inc., has reported for the nine months ended September 30, 1931, a net profit of $666,135 after depreciation, federal taxes and other charges, equivalent to 99 cents a share on 676,012 shares of no-par capital stock. This compares with earnings of $951,976, or $1.41 a share, in the first nine months of 1930. Deficit after dividends for the first three quarters was $461,754 as against $350,286 in the same period last year. Net for the first nine months of 1929 was $3,108,919.

Net profit for the September quarter was $85,956 after charges and taxes, equal to 13 cents a share and comparing with $338,976, or 50 cents a share, in the preceding quarter and with $126,477, or 19 cents a share, in the third quarter of 1930. Directors have declared the regular quarterly dividend of 40 cents, payable December 15 to stock of record November 30.

Income account for quarter ended September 30, 1931, follows: Net sales, $2,809,179; costs, expenses, etc., $2,619,734; operating profit, $189,445; other income, $50,846; total income, $240,291; depreciation, $146,499; federal taxes, etc., $7,836; net profit, $85,956; dividends, $263,545; deficit, $177,589.

Balance sheet as of September 30, 1931, shows total assets of $17,566,195, comparing with $17,979,325 on December 31, 1930, and total surplus of $7,108,939 against $7,570,634. Current assets, including $3,534,976 cash and marketable securities, amounted to $8,042,288 and current liabilities were $495,502, comparing with current assets of $8,312,363 and current liabilities of $533,209 on December 31, 1930.

Income account of Raybestos for nine months ended September 30, 1931, compares as follows:

	1931	1930
Net sales	$10,071,333	$13,506,762
Costs, expenses, etc.	9,055,978	12,213,697
Operating profit	$1,015,355	$1,293,065
Other income	171,121	189,954
Total income	$1,186,476	$1,483,019
Depreciation	431,336	407,861
Federal taxes, etc.	89,005	123,182
Net profit	$666,135	$951,976
Dividends	1,127,889	1,302,262
Deficit	$461,754	$350,286

Automotive Rubber Goods Exports Show Slight Drop to $1,597,565 in October

EXPORTS of automobile tires, inner tubes, tire sundries and repair materials from the United States during the month of October had a total value of $1,597,565, a slight decline from the September figure of $1,690,286. British India was the chief market for truck and bus casings and for inner tubes and was second only to British Malaya as a customer for passenger car casings. In the month 96,041 passenger car casings were exported with a value of $751,070 and 37,061 truck and bus casings, worth $600,827.

Rubber boots exported during the month totaled 103,313 pairs with a value of $186,136 and rubber shoe shipments numbered 114,802 pairs with a value of $128,347, marking a drop from the September totals. Exports of canvas rubber-soled shoes showed an increase to 105,966 pairs, valued at $50,678. The United Kingdom was the leading destination for rubber boots, Germany for rubber shoes, and Argentina for canvas rubber-soled footwear.

Shipments of rubber belting in October amounted to 246,164 pounds, worth $101,527, and exports of rubber hose totaled 393,109 pounds with a value of $102,469, the former representing a decrease and the latter an increase from the September totals. The United Kingdom was the chief customer for each.

During October, the United States exported 1,502,458 pounds of reclaimed rubber, valued at $68,127, or 4.53 cents a pound as against an average value of September exports of 4.41 cents a pound, and 3,508,577 pounds of

scrap and old rubber, worth $63,759. Canada resumed its position as leading market for reclaim, with the United Kingdom in second place and smaller amounts going to Argentina, France, Cuba and Hong Kong. Spain was the first customer for rubber scrap, with Hong Kong taking the second largest quantity.

Firestone Tire & Rubber Company Is Reported as Seeking to Acquire Fisk

CONTROL of the Fisk Rubber Company, Chicopee Falls, Mass., may pass to the Firestone Tire & Rubber Company, it was indicated on December 3 by Associated Press dispatches. Fisk Rubber, which has been the fifth largest rubber and tire manufacturing concern in the United States, has been in receivership since the first of this year.

The newspaper dispatches carried the information that Harvey Hollinger, controller of the Firestone Tire & Rubber Company, and a crew of auditors were in Chicopee Falls "making a complete audit and appraisal of the accounts, inventories, plant and equipment" of the Fisk company. At the home office of the Firestone company, it was admitted, according to the Akron *Beacon Journal*, that "some investigation had been made of accounts and condition of the Fisk company," but it was denied that any direct overtures had been made toward acquiring the Fisk properties. That newspaper further declared that H. T. Dunn, president of Fisk, told the Associated Press in Springfield, Mass., that Firestone "is definitely interested in acquiring the Fisk Rubber Company."

The Fisk Rubber Company lost $8,791,251 in 1928 and $7,496,457 in 1929, while its loss for last year was estimated by Mr. Dunn at $6,700,000. The receivership last January followed the failure of heads of the Fisk Rubber Company to effect reorganization and to arrange for the meeting of notes amounting to $8,199,500, which became due January 1. It controls two fabric plants and the factory of the Federal Rubber Company at Cudahy, Wis.

Seiberling Rubber Company Reports Profit of $500,347 in Fiscal Year

THE Seiberling Rubber Company and subsidiaries report for the year ended October 31, 1931, a net profit of $500,347 after interest, depreciation and other charges, equivalent to $32.60 a share on the 15,346 shares of 8 per cent preferred stock on which there is an accumulation of unpaid dividends. Allowing for only annual dividend requirements on the preferred stock outstanding on October 31, the balance is equal to $1.39 a share on 271,106 shares of no-par common stock.

This year's results compares with a net loss of $1,282,098 in the preceding fiscal year and with a net profit in the year ended October 31, 1929, of $132,207, equal after preferred dividends to less than one cent a share on the 267,346 no-par common shares then outstanding. In the year ended October 31, 1928, the company earned $511,968, and in the ten months ended October 31, 1927, Seiberling earnings were $1,016,068.

Net current assets as of October 31, 1931, totaled $2,781,367, while the ratio of current assets to current liabilities was in excess of four to one. Cash on hand at the end of October was $1,165,303, of which $750,000 was paid out on November 15 to meet maturing debentures and $93,000 was disbursed for interest requirements on the outstanding funded debt.

N. Y. RUBBER GROUP WILL HOLD SECOND XMAS PARTY DEC. 16

MEMBERS of the New York Group of the Rubber Division, American Chemical Society, will hold their final get-together meeting of 1931 at the Building Trades Employers Association clubrooms, 2 Park Avenue at 33rd Street, New York City, on December 16 at 6 P. M. No meeting by members of the Rubber Division has ever combined novelty of entertainment with the customary seriousness of purpose so successfully as the Christmas Party staged by the New York Group last December, but it is hoped that even that occasion will be surpassed by this year's program.

More than 250 members and guests enjoyed the Christmas festivities and listened to the technical discussions last year, and the committee in charge expects to equal or exceed that gathering next Wednesday night. Following the dinner, which will start at 6 o'clock sharp, a paper on "Latex and Its Industrial Applications" will be presented by J. B. Crockett and J. Edwardes, of the Heveatex Corporation, Malden, Mass. There will be a short talk by C. S. Ching, director of industrial and public relations for the United States Rubber Company, and a brief business meeting will be featured by the election of officers for 1932.

The entertainment program will be the most elaborate the Group has ever staged and will be conducted by Prof. Al. Baker as master of ceremonies. In addition Walter Grote will entertain with a few new tricks, and a well-known pianist will render some of his favorite selections. A mystery speaker is also scheduled. Numerous Christmas presents will be given to the holders of lucky tickets, and worth while prizes will be offered for several interesting contests. Souvenirs will be at every plate.

The tickets are $2.50 per plate and reservations should be made immediately through John Parks Coe, secretary-treasurer of the Group, in care of the Naugatuck Chemical Company, 1790 Broadway, New York City.

Macy's Balloon Parade

THE annual Thanksgiving Day parade, sponsored by R. H. Macy and Company, New York, was marked this year by new and larger features in the form of grotesque balloons than had heretofore been displayed on these yearly occasions. As usual the balloons were designed by the well-known cartoonist, Tony Sarg, and constructed by the Goodyear Tire and Rubber Company, at Akron.

The chief unit in the parade was a gigantic dragon, 110 feet long. Other features included a two-headed giant, 53 feet high, two cats 55 and 45 feet long, a 50-foot hippopotamus and a "Terrible Turk," 30 feet tall. All of these fantastic balloons were made of rubberized fabric and filled with helium gas. At the conclusion of the parade the comic figures, each ballasted with several hundred pounds of water, were released on self-directed flights. Rewards were tendered by the Macy company for the return of any of them.

Clarence D. Chamberlin, the aviator, captured the dragon on the wing of his airplane as he was flying over Brooklyn.

(Other news of the industry will be found on Pages 221-226)

Many Branches *of the* Industry Show Increased Activity

DESPITE the current depression in general business, manufacturers of rubber products other than tires and tire sundries operated on higher productive schedules during the third quarter of 1931 than in either the preceding three months or the third quarter of last year, according to statistics compiled from questionnaires of the Rubber Manufacturers Association, Inc. Several branches of the industry maintained heavier production schedules, as measured by crude rubber consumption, during the entire first nine months of this year than during the same period in either 1930 or the record breaking year of 1929. These latter were heels and soles, insulated wire and insulating compounds, rubberized fabrics other than for automobiles, bathing apparel, sporting goods, toys and novelties, and miscellaneous rubber products.

Output of mechanical rubber goods, boots and shoes, rubber flooring, hard rubber goods and rubber clothing was larger in July, August and September than in either the preceding three months or the third quarter of 1930. Production of druggist sundries, medical and surgical rubber goods and airplane tires was higher in the first nine months of 1931 than during the corresponding period of last year. Output of motorcycle tires, miscellaneous solid tires and stationers' rubber goods was heavier in the September quarter this year than last year.

The sales value of factory shipments in the third quarter this year exceeded both the preceding three months and the third quarter of 1930 in the case of airplane tires, heels and soles, hard rubber goods, drug sundries, medical and surgical rubber goods. The third quarter of last year was exceeded in the case of bathing apparel, and the second quarter of this year in the case of inner tubes, bicycle tires, tire sundries, boots and shoes, insulated wire and insulating compounds, rubber clothing and rubber flooring. Sales for the full nine months surpassed both 1930 and 1929 in the case of sporting goods, toys and novelties, and miscellaneous rubber products.

The actual value of all shipments of manufactured rubber products, however, totaled $190,183,000 in the period, as compared with $193,768,000 in the second quarter of 1931 and with $240,585,000 in the third quarter of 1930. Tires, tubes and tire repair materials, as usual, comprised the greater part with a value of $130,046,000 as against $60,137,000 for all other rubber products.

Crude rubber consumption in the third quarter totaled 83,632 tons as against 107,755 tons in the second quarter and 85,261 tons in the third quarter of last year. In the third 1931 quarter, tires and tire sundries absorbed 66,612 tons as against 17,020 tons for all other products.

Nine Months' Shipments Lower

Combined figures for the first nine months of the year show the value of shipments to have been $538,954,000, as compared with a total of $698,124,000 during the first three quarters of 1930 and with $913,178,000 in the like period of 1929. In the first nine months of the year, consumption of crude rubber totaled 281,039 tons, as compared to 299,100 tons in the first three quarters of last year and to 381,603 tons in the record breaking period from January to September, 1929. Reclaimed rubber consumption for the first nine months of 1931 totaled 106,078 tons.

The decline in factory activity is revealed by the report of the total daily average number of employes in the plants answering the questionnaire, based on the third week in July. The figure for 1931 was 113,291 as against 136,243 for last year and 175,578 for 1929.

The reports received by the Rubber Manufacturers Association are estimated to represent various percentages of completeness, but all figures quoted above have been raised so as to represent 100 per cent of the domestic industry.

Old and New Models in Rubber Machinery

Someone recently said, "Replacing industry's obsolete equipment with improved machinery and tools now available is the way to win this economic war and to rebuild prosperity." Certainly this is true of the rubber industry, where much old equipment is still in use—despite the availability of modern machinery which is more economical, more efficient and considerably safer than the old equipment.—The Editor, THE RUBBER AGE.

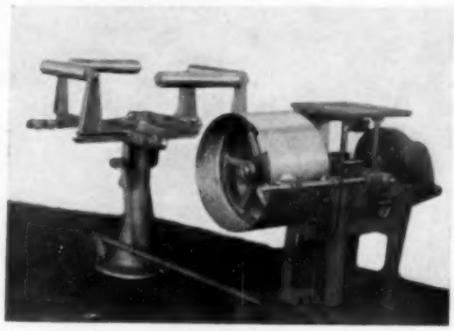


Figure 1

About 8 years ago new methods were put into use for producing passenger car size tires. This was the first flat or drum method of building. Fig. 1 shows one of the first machines used with its single direction drive, stock turret method of booking fabric and the non-collapsible flat face drum.

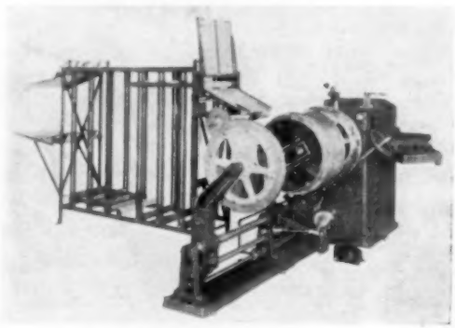


Figure 2

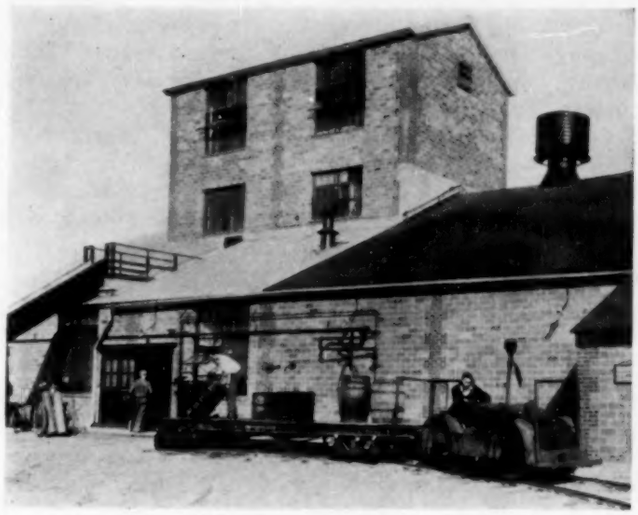
The latest type machine is shown in Fig. 2. This machine is electrically as flexible as the new core built machines, with pneumatic bead setters, automatic or manual stitchers and optional over-head tools. Stock is festooned and held under uniform tension. Tires are air or water bag cured.

(Photographs by courtesy of the National Rubber Machinery Co., Akron, O.)

Possible Commercial Uses of DUPRENE

In Several Ways It Is Superior to Crude Rubber—No Sulphur Required in Vulcanization — Cost Is Higher

Editor's Note: ***Although Du Prene has not been extensively tried out on a commercial scale, a large number of practical tests have been conducted in the du Pont laboratories during the past several years concurrently with the development of the product. These tests indicate that Du Prene will have a wide range of important commercial uses.***



Du Pont Plant at Deepwater Point, N. J., Where Du Prene Will Be Manufactured

THE scientific papers on synthetic rubber that were presented at the meeting of the Akron Rubber Group on Monday, November 2nd, 1931, contained little or no information as to the commercial uses of the material but were concerned almost entirely with the chemistry of chloroprene and its polymers. In view of the wide spread interest that has been aroused by the announcement of this discovery, the editors of THE RUBBER AGE have endeavored to obtain from members of the du Pont organization and others as much information as possible concerning the purposes for which the new synthetic rubber may be used.

As announced in a previous issue of THE RUBBER AGE, the chloroprene polymers will be sold under the trade name Du Prene and we are now informed that the commercial plant for the manufacture of Du Prene will probably be in production shortly after the first of the year.

It is expected that Du Prene will ultimately be marketed in two forms, namely, the plastic polymer and the synthetic vulcanized latex. The plastic polymer is capable of being processed in the same manner as unvulcanized rubber. Pigments, fillers, softeners and other ingredients are mixed with it by milling in the usual fashion and it may be prepared for vulcanization by calendering or extruding, the same as ordinary rubber. Any of the methods used for vulcanizing rubber articles may be applied to Du Prene excepting, of course, that no sulfur is required. Du Prene articles have been vulcanized in open steam with and without soapstones, in dry heat and in molds.

Du Prene may be used, if desired, for substantially all of the purposes for which ordinary rubber is employed. However, the cost of production of Du Prene will be many times more than the present price of crude rubbber and it will therefore be used only for purposes for which it is definitely superior to natural rubber, unless under-supply and heavy consumption should again drive the price of natural rubber to the high levels it reached a few years ago. Such a development is, of course not probable in the near future.

One of the most valuable properties of Du Prene that has been discovered in the du Pont laboratories is its resistance to the swelling action of solvents including crude oil, petroleum products of all kinds, animal and vegetable oils and synthetic organic solvents. The discovery of this property has opened up a very wide field of usefulness for the material. Oil and gasoline hose, pipe rings and force cups made in the du Pont laboratory more than a year ago have been tested under conditions simulating actual service and it is apparent from these tests that Du Prene is better adapted than natural rubber for the production of resilient or elastic articles of every description that must come in contact with vegetable, animal, or mineral oils or synthetic solvents that swell rubber. Among the articles in which Du Prene may be used on account of this property are printers' supplies such as rolls, blankets, etc., oil well specialties including plungers, packers, force cups, etc., hose and tubing for conducting liquids and gases that swell rubber, conveyor and transmission belts that may come in contact with oil, packing, valve discs, diaphragms, breather bags for tanks containing gasoline and other solvents, tank seals, gaskets, covered rolls, coated fabrics including workmen's aprons, oil resisting cable covers, hydraulic brake cups, medicine droppers, gloves, clutch inserts, and boots and shoes for industrial service. Oil resisting sponge rubber has also been produced from Du Prene.

Low Water Absorption

Natural rubber may be described as being water repellent, not truly water resistant, because it contains sugars, proteins and other water attracting materials, which cause even vulcanized rubber to absorb considerable quantities of water when soaked in pure water or in aqueous solution. Du Prene contains no water attracting materials and it has been found that it absorbs much less water than natural rubber. This property suggests its use in insulated wire, especially covers for submarine cables. There are a great many other products that are exposed to water, steam or aqueous solutions in service and whose efficiency is impaired by water absorption, for example, bushings for

under-water service. Du Prene may be used to advantage for such products.

Permeability to Gases

It has also been discovered in the du Pont laboratories that the permeability of Du Prene to many gases is lower than that of ordinary rubber. The rate of diffusion of helium and hydrogen through Du Prene has been found to be only about 40% as great as through rubber. This discovery immediately suggests the use of Du Prene for coating balloon fabrics, for gas mask face pieces and for the manufacture of a wide variety of other gas containers. The gas container that is made of rubber in the largest volume is, of course, the automatic inner tube but in this field other considerations, chiefly price, will probably outweight the greater resistance of Du Prene to the diffusion of air.

Heat Resistance

One of the most striking differences between Du Prene and ordinary rubber is the fact that it is not subject to reversion. On the contrary, overcuring and aging at either normal or elevated temperatures appear to cause a very slight gradual increase in the modulus. This property immediately suggests to the rubber chemist a host of important industrial uses. A most interesting application of this property is the use of Du Prene in bus and truck inner tubes whose deterioration is due chiefly to heat. However, other factors, including cost, will have an important bearing on the decision as to whether Du Prene shall be used commercially for this purpose. Du Prene may also be used to advantage on account of its heat resistance in products such as surgeons' gloves and hospital supplies that must be frequently sterilized. Among other products in which Du Prene may be utilized on account of its heat resistance and freedom from reversion are elastic garments, packing, engine supports, filter press plates, tank and pipe lining, covered rolls, valves, washers and brake lining.

Du Prene in Protective Coatings

It has also been discovered that Du Prene is more resistant than natural rubber to attack by ozone, oxygen and many chemicals. Du Prene films may be made to adhere to properly prepared metal surfaces. Du Prene is therefore a satisfactory base for coating compositions to protect metals and other surfaces from the elements and from the deteriorating effect of chemicals, etc. Its use as an inside coating on gas pipe lines is regarded as a promising field of application. Coating compositions derived from Du Prene also provide an elastic varnish for linoleum, leather, rubber, etc., and a sizing material for paper to make it oil-and waterproof.

Wire insulated with a Du Prene compound has been found to be more resistant to corona checking than a similarly compounded rubber insulation. It has also been found that Du Prene compounds have less tendency to check than natural rubber when exposed under tension to the sun or to artificial light.

Flame Resistance

The du Pont laboratories have discovered another interesting property of Du Prene, namely, its fire resistance. Du Prene will burn when a flame is applied to it but it burns very slowly and will not support combustion after the flame is removed. Because of this property it may be employed in flame-proof insulated wire and many other rubber products that may be exposed in service to conditions that would cause ordinary rubber to burn.

Adhesives and Combining Cements

Adhesives for laminating paper, leather, felt, pyroxylin, glass, wood, etc., have been made in the du Pont laboratories from Du Prene in combination with other materials. Excellent adhesion of two pieces of fabric has been obtained with combining cements made from Du Prene Latex or plastic polymer with the addition of other compounding ingredients. Rubber-to-metal cements and adhesives for bonding together other unlike materials, derived from Du Prene, are being investigated.

Molding Compositions

Du Prene has been found to be a very satisfactory bonding material for compositions comprised chiefly of such materials as leather dust, cork, linoleum scrap, asbestos fibre, wood pulp, bagasse, etc. Anti-squeak shims made from cork and linoleum scrap bonded with Du Prene appear to have interesting possibilities. Abrasion wheels bonded with Du Prene may be capable of running at higher speeds than rubber bonded wheels. Molding compounds made from Du Prene with the addition of proteins and other modifying agents have interesting possibilities as, for example, phonograph records.

Impregnating and Coating Compounds

Because of the small particle size, Du Prene latex impregnates many porous materials to better advantage than natural rubber latex. Leather, paper, felt, wood, brick and textile including woven asbestos have been impregnated and/or coated with Du Prene latex in the du Pont laboratories, making them resistant to water, solvents and chemicals, also in many cases improving their strength, toughness and flexing resistance.

Elasticity

Du Prene is highly elastic, that is, it shows a very low hysteresis loss and low permanent set. Because of this property it is believed that Du Prene will find many industrial applications in cases where a more elastic material than natural rubber is required. Preliminary tests indicate that golf balls made with Du Prene may be driven farther than balls made with ordinary rubber thread.

Although Du Prene has many advantages over natural rubber, it also has disadvantages aside from its high cost which will interfere with its use for many purposes for which it would otherwise be desirable. For example, Du Prene darkens under the influence of sunlight and hence is not suitable for us in dead white or light colored compounds. Although Du Prene latex and products made from it are practically odorless, Du Prene plastic polymer, in its present stage of development has a decided odor which will prevent its use for many purposes. Even its non-reverting character, which makes it very desirable for some applications, may be disadvantageous in certain cases.

Abrasion Resistance

Certain laboratory tests have indicated that Du Prene compounds have slightly poorer resistance to abrasion than similarly compounded natural rubber. Other tests have shown Du Prene to be considerably superior to natural rubber in this respect. In view of the fact that Du Prene does not undergo reversion and is not softened by high temperatures, it seems probable that pneumatic tire tread stocks and other abrasion resisting compounds made from Du Prene might be superior to similar compounds made from natural rubber when used or tested at high temperatures. Tests are under way which it is hoped will throw

(Concluded on page 218)

New Uses for Rubber Discussed at PARIS CONGRESS

Abstracts of Papers Delivered Show Wide Range of Subjects—The Potentialities in Flooring and Paving Stressed—Congress Is Well Attended by Prominent Leaders of the Industry Abroad

AT the International Congress for the Development of New Applications of Rubber, held at Paris, September 29-October 1, of this year, an interesting group of papers were presented. The membership of this Congress was made up of many of the most prominent figures in the rubber producing industry in Great Britain and Continental Europe. The papers presented covered a wide variety of subjects. Brief abstracts of the papers are given below:

The Development of New Uses for Rubber

By SIR STANLEY BOIS

Summarizes the development of the study of new uses by the Propaganda Department of the Rubber Growers Association, and outlines the scope of their new uses work. Mentions application of electro-deposition to inner tubes, gloves, bathing shoes, balloons, sponges, microporous rubber, cartons for food, coating of strings of tennis racquets. Using rubber for protection against wear of moving pieces in machines, for elimination of vibration in motor cars, for reducing expense of railway operation and increasing passenger comfort, use of air and sponge rubber cushions, rubber flooring in rolls, and increasing use of rubber footwear throughout the world are visualized as potentially important factors.

The Applications of Rubber to Paving

By F. JACOBS

Reviews progress in manufacture of rubber paving, types produced, history of experiments, and lists location of existing rubber paved streets. The price factor has been the dominant influence retarding development, a secondary influence has been lack of standardization of types of paving.

Roadways Surfaced With Rubber

By F. G. SMITH

The article comments on the development of different types of rubber paving, lists the most important experiments made from 1922 to 1930, gives a short description of the Cowper, Gaisman, Cresson and North British types of paving, quotes certain statistics on comparative costs of different materials used for street paving, and closes by referring to recent experimental street surfacing with asphalt combined with latex as perhaps affording a new outlet for rubber.

Use of Rubber in Floor Covering

By M. COMBET

The relative advantages of vulcanizing the product in a press as compared with vulcanizing larger pieces on cylinders is discussed in detail. Placing rubber flooring on floors is a technical process requiring experienced workmen.

Rubber, Its Production and Consumption

By ROBERT HALLET

Commencing with a review of rubber production and the present over-supply and future outlook, and presenting certain statistics on production of plantation and wild rubber, the emphasis of this article is on rubber consumption, and particularly the purposes for which rubber is used. In 1930, 41.5 per cent as much reclaim as of crude rubber was used in the world, against 30 per cent in 1924, the author estimates. Considerable space is devoted to rubber flooring, rubber paving and to the recent development of a pneumatic tired rail car by the Michelin Company. Considering the future outlook, the author feels that while increased consumption will naturally develop and particularly as a result of low prices, over-production will continue unless a new development calling for a huge rapid growth of consumption is actually found.

Recent Developments in Rubber Estate Practice and Their Results for Broadening the Outlets for Rubber

By SIDNEY MORGAN

Beginning with a resumé of the efforts of estates to secure uniformity in types and qualities of rubber, and commenting on improvements to date, and the concomitant results on native preparation of rubber, this article turns the spotlight on development in the rubber latex field. There are slight variations in latex caused by seasonal changes and by differences in the ages of trees. The high cost of shipping latex containing no more than 4 lbs. of dry rubber per gallon led to serious study of cost-saving in this connection, such as the Hopkinson "sprayed rubber" process, Revertex, etc.

Utilization and Development of Sponge Rubber

By F. DE POIX

Sponge rubber, used for a score of years alongside natural sponges as an absorbant, has recently been more widely used in France because of its shock-absorbing properties, for which it has been employed in aviation. Some inventors have tried to use sponge rubber to replace inner tubes. A more limited use has been found in surgical bandages in which the continuous pressure of sponge rubber is markedly superior to the pressure even of air bandages. In England, sponge rubber mattresses are used, particularly in hospitals, where their susceptibility to complete disinfection makes them particularly advantageous. In British colonies particularly, sponge rubber upholstery for railway and tram cars is employed, and this use has been extended to automobiles.

The Possibilities of Rubber as an Insulating Material

By MAX FORRER

It appears that any expansion in this field will take place through wider use of ebonite or similar materials, rather than soft rubber products, although the author speaks of some advantages of "paragutta," a successful mixture of gutta-percha and rubber. The author points out four matters for consideration: (1) the fact that vulcanized ebonite keeps the ability to be soldered to itself at high temperatures and under strong pressure; (2) the recent work along lines of a chemical transformation of rubber into a thermoplastique insulating material; (3) the possibilities of mixing rubber and synthetic, polymerisable resins; (4) a development which, although still in the realm of speculative science, offers the best solution to the difficulty; namely, the polymerisation of rubber itself. In addition the report alludes to the possibilities of latex in the insulating field.

Rubber in the Netherlands

By DR. A. G. N. SWART

This article points out that the Netherlands, although the second largest producer of raw rubber, and the seat of important rubber markets, has but a small industry devoted to the manufacture of

rubber. The Netherlands are none the less among the world leaders in seeking new uses for rubber through the "State Rubber Service," established in 1921. This service is engaged in chemical and technical research on commercial and industrial uses for rubber.

Fundamental Factors Influencing New and Old Uses of Rubber

By PHILIP SCHIDROWITZ

In any examination of old or new uses for rubber, one must consider the prices of rubber and the various other materials and processes involved. The author shows that 10 years ago, steps were being taken to develop rubber flooring, but that the fluctuations in rubber prices delayed the work until recently. The pamphlet discusses rubber flooring, and says that to be successful it must be comparable in price, ease of installation, thickness, surface safety, etc., with existing carpet mediums, *i.e.*, linoleum. Much experimentation on this has been done, and the problem can be solved successfully. If rubber sufficiently lasting and resisting can be developed, one can conceive of walls and ceilings made of rubber with rubber decorations.

The Role Played by Bright Organic Coloring in Extending the Uses of Rubber

By DR. W. J. S. NAUNTON AND P. A. FERT

American manufacturers profited by their early use of attractive inorganic colors in rubber to capture a large portion of the European market. The accurate application of these colors is admittedly more difficult, but must be studied carefully. Where colors of definite fastness properties are essential the dyestuffs manufacturer can offer them. Sponge manufacturers, prejudiced by early unfortunate experiences, sometimes refuse to examine organic colors; these are now nevertheless available fast to ammonia. Even very fast to light colors for the waterproof trade are available. The essential is closer co-operation between dyestuff and rubber manufacturers which will enable the former to submit a suitable range for any given purpose.

Latent Possibilities of Ebonite

By THOMAS W. FAZAKERLY

The author remarks that the most important qualities of ebonite are its resistance to electricity and to chemical reaction, combined with a relatively low price. As a result the electrical and radio industries are largely dependent upon it, while the chemical industry requires large amounts for containers in which corrosives are to be handled. He suggests that by inlaying ebonite with colors, products such as tableware, mirror frames, perfume bottles, toothbrushes may be developed in ebonite that would appeal to women, as well as cigarette boxes, tea and coffee sets, plates, etc. The medical and surgical professions can use more ebonite and for hospital pots and pans the material would be far superior to enamel, which is likely to chip.

The Use of Rubber in Materials of the French Post, Telegraph and Telephone Service

Certain telephone wires and cables have a layer of pure rubber applied directly to the metal, of as much as 92 per cent purity, and sometimes one or two other layers of rubber. Recent changes in the design of cables make it likely that less rubber will be used in this way in the future. Vulcanized rubber is little used in telephone installations and ebonite is being replaced by insulating materials that are cheaper, but of the same technical qualifications.

The Application of Rubber to the Automobile

By FLORIMOND J. COUCKE

Without the internal combustion motor and the pneumatic tire, the automobile industry could never be where it is today. Among the many uses of rubber in automobiles, it is found as an insulating material in the lighting and starting systems. It is used in the elastic couplings of the magneto, pumps, ventilators, etc. Rubber is necessary in the fittings of the pipes of the radiator, the gasoline feed, windshield wiper and like places. It is needed in the body, on the carpets and the foot rests, and is used for protection against the rain, against shocks and vibrations and in silencing devices. The horn and speaking tubes of automobiles require rubber, as do the various details like foot pedal covers, windsheld wipers, and such like. The suspension of the chassis in rubber is not dealt with in this article, nor are certain other technicalities, but the present low price of rubber and the steady progress which is being made in its manufacture should, in the opinion of the author, lead to greater use of rubber in motor cars, and prove helpful to the whole automobile industry.

Uses of Rubber in Aeronautics and Aviation

By M. WAVELET

Having pointed out that aviation is dependent on rubber for many necessary parts, this article considers the making of lighter than air machines. The requirements of the envelopes of balloons are such that in most cases, rubberized cloth alone provides the necessary qualifications. Mention is made of the initial inspection and tests of the cloth, the application of various layers of rubber to the cloth, details of the vulcanization, and further inspection.

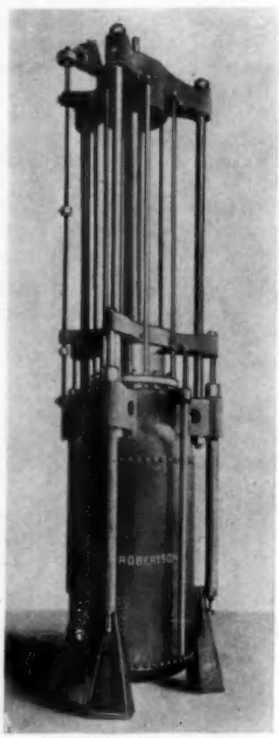
A Survey of the Work of the "Ceylon Rubber Research Scheme" in London

By G. MARTIN

Starting with a few words on the "Ceylon Rubber Research Scheme," and how its work has led to increased yield, this paper deals with the attempts of the "Scheme" to obtain rubber that is more exactly suited to the needs of the manufacturers. Careful study has been made of the unfavorable qualities of raw rubber and research is being carried on to make plantation rubber more plastic and, therefore, more like the reclaimed. Important results came to the experiments in crepe rubber soles, and it was also found that oxidation played an important role in making soft rubber, and that the soft rubber to be found on the markets resulted from oxidation having taken place.

Hydro-pneumatic Accumulator

AMONG the many interesting features of the new hydraulic accumulator, recently introduced to the industry by John Robertson Company, Brooklyn, N. Y., is the low air pressure required. The air tank holding air at 175 lbs. maximum pressure forms the base of the accumulator. The hydraulic ram is supported by the crosshead above and the hydraulic cylinder and air ram which are floating on the air pressure are guided at the bottom of their respective glands and at the top by the intermediate platen which in turn is thoroughly guided for the vertical movement.



The hydraulic cylinder is bronze bushed and fitted with a bronze packing gland. Both rams are outside packed with square flax packing. The limit switch and tell-tale rod provided with the accumulator automatically control the supply pump.

The accumulator is protected from possible failure of the limit switch by a by-pass vent in the hydraulic ram. Cushion springs prevent the operation of this by-pass, except when it is required. An auxiliary air compressor with automatic control maintains air pressure in the air cylinder and storage tanks.

This accumulator may be placed on an ordinary factory floor and does not require a heavy foundation. It occupies a minimum of floor space and is built in sizes from 96 gallons at 1,500 pounds pressure to 2½ gallons at 6,000 pounds per square inch hydraulic pressure.

International Trade in LIQUID LATEX

Increasing Imports Into Manufacturing Countries Show the Growing Popularity of This Form of Crude Rubber—Shipment in 1931 Will Exceed All Records

Transferring Latex from Ship to Tank Cars

INTERNATIONAL shipments of liquid latex began on an important scale in 1922. British Malaya and Sumatra have been the principal sources of supply. The United States has been the chief consuming country. The export statistics of British Malaya and the Netherland East Indies, according to reports of the Department of Commerce, show growth of exports to United Kingdom and Netherlands, whence re-exports to other markets probably occur, and to Germany, Italy, France, Belgium, Japan and Australia. There are doubtless occasional re-export shipments of latex from the United States. No foreign country reports latex as a separate item in the import statistics, and it is therefore impossible to determine the exact extent of use in particular countries, but there is evidence of steady growth in the trade, and United States imports in 1930 and 1931 have established new high records.

Lack of uniformity in the official trade statistics reporting imports or exports of latex for different countries is a complicating factor at present. Owing to the development of trade in various latex concentrates, it appears that the only method of showing the volume of trade accurately is by requiring shippers or importers to show the dry rubber content by weight in the official export declarations, and in the forms filled out for customs records at time of entry into consuming countries. An attempt should also be made to assure inclusion of all shipments of latex concentrates, as well as of ordinary liquid latex, in the official statistics on latex issued by each country. This has already been done in the case of British Malaya and the United States. The provision of official trade statistics on imports and re-exports in the case of the United Kingdom and Netherlands would also be helpful.

Monthly statistics of exports of latex showing quantity in imperial gallons, from Malaya, Ceylon and Sumatra, have been reported in the Bulletin of the Rubber Growers' Association. The annual totals are reported as shown below, statistics for 1922 being somewhat incomplete for Malaya and Ceylon. It is believed that these statistics cover exports of ordinary liquid latex only, not including concentrates. Some latex is also exported from Java, but records are not published by the Rubber Growers' Association. The dry rubber content of these exports is estimated by R. G. A. at 3½ lbs. per imperial gallon. Note that in recent years, decline in the exports from Malaya is balanced by increase in Sumatra exports (or vice versa), the principal shipper operating in both countries. It would appear that exports grew rapidly in 1925 and 1926, that subsequent reduction was necessary to reduce excessive stocks, and that the 1929-1930 exports is reasonably representative of the consumption during those years.

	Malaya gallons	*Ceylon gallons*	*Sumatra gallons*	*Total Reported gallons*
1922	40,061	1,977	228,324	270,362
1923	73,757	11,431	1,498,669	1,483,857
1924	714,617	59,288	644,859	1,418,764
1925	2,315,439	3,750	1,432,681	3,751,870
1926	2,087,845	13,096	28,193	2,129,134
1927	1,560,976	251	53,572	1,614,799
1928	919,909	683	933,501	1,854,093
1929	1,708,529	....	833,143	2,541,672
1930	815,186	....	1,699,835	2,515,021

Exports of latex from Netherland East Indies are officially reported in complete detail in the monthly trade returns. While, as in the case of Malaya, most of the exports are destined for the United States, the list of foreign countries receiving shipments direct from N. E. I. has steadily increased. Shipments to Netherlands were at a rate suggesting possible redistribution from that market during 1930 and 1931.

United States imports of latex seem likely to make a new high record in 1931, following the preceding record set in 1930—there is thus some evidence of steadily increasing use of latex even during this depression period. The unit value per pound of dry rubber content is usually higher than for rubber imported in sheet form, partly because latex commands a premium as a special product, and partly

United States Imports of Rubber Latex and Concentrates

Calendar Years	**Dry Rubber Content pounds*	*Value dollars*	*Unit Value cts. per pound*
1924	4,830,747	864,059	17.90
1925	8,630,799	3,537,810	40.98
1926	7,589,165	4,680,386	61.65
1927	2,499,906	876,077	35.05
1928	9,334,927	2,185,579	23.41
1929	8,351,487	1,787,997	21.40
1930	9,966,527	1,506,804	15.12
1931 (10 mos.)	9,190,362	801,935	8.73

*Prior to March, 1930, the dry rubber content of latex imported was estimated at three pounds per gallon. There is some reason for believing 3½ pounds a better estimate. Since March, 1930, importers have been required to report the dry rubber content on declarations of imports of latex and latex concentrates at time of entry.

because transportation charges are higher for latex than for dry rubber in cases.

United States imports of latex have come mainly from British Malaya and Sumatra. There have also been regular and important arrivals from Java in recent years, and some latex reaches America regularly via the United Kingdom. Occasional imports from Ceylon are noted, and if the statistics are accurate, experimental imports have been made from Liberia, India and Brazil.

There is no information available concerning re-exports of latex from the United States, which nevertheless probably occur to some extent.

Committee D-11 Activities

THE American Society for Testing Materials Committee D-11, on Rubber Products, held its fall meeting at the Hotel Paramount in New York on November 5, under the leadership of the vice-chairman, C. R. Boggs, of the Simplex Wire and Cable Company. The resignation of W. B. Wiegand, Binney & Smith Company, who has served the committee as chairman during the past two years, was accepted with regret and resolutions of appreciation for his services were extended. Until the biennial election in June, the activities of the committee, at its unanimous request, will be directed by Mr. Boggs as acting-chairman since the regulations of the Society do not permit selection of a permanent chairman from those representing producer interests.

The committee gave considerable attention to plans for making its service more valuable to industry. An open discussion emphasized the opinion that in the present state of the industry less attention should be given to the preparation of detailed material specifications for rubber products and that the committee should actively devote its efforts to standardization of test methods and development of performance specifications. Following the discussion, the committee recorded this policy by a formal vote.

Several important actions affecting standard specifications were taken at this meeting. New performance specifications for rubber insulated wire were presented to the committee by the sub-committee on insulated wire and cable. The Society has in force, at present, specifications covering two classes of insulation compounds. One of these, termed the type A compound, does not contain organic accelerators nor anti-oxidants. In the other, called the type AO compound, use of accelerators and anti-oxidants is permitted. Both of these specifications are of the "materials" type. In the new specifications, no requirements are included as to composition of the rubber compound, the quality of which is evaluated solely on the basis of test results. This insulation is designated as the performance type compound. The committee voted to accept the new specifications and to recommend their adoption by the Society as an appendix to the present tentative specifications for insulated wire and cable, D-27-31T. It is felt that by such action the Society will be taking an important step forward in the preparation of satisfactory rubber product specifications.

New specifications for friction tape were presented to the committee by the sub-committee on insulating tapes. In these specifications, the requirements are definitely made more strict and important changes are given in the methods of test which are presented in considerably greater detail. The present weight requirements are removed and minimum yardage per roll is specified. The committee voted to accept these specifications and to recommend that the Society withdraw the present standard D-69-28, adopting the new specifications as tentative standards. Revisions were also offered in the tentative specifications for rubber insulating tape, D-119-28T, which the committee will recommend for adoption by the Society.

Symposium on Rubber Planned

The next meeting of the committee will be held in Cleveland during the week of March 7, 1932. This meeting will be in conjunction with a Regional Meeting of the Society, sponsored by the Cleveland District Committee, at which a symposium on rubber will be presented. This symposium, in preparation of which Committee D-11 is cooperating, will consist of twelve papers given in two sessions by prominent rubber technologists. The papers of the first session will be on the general subject of the manufacture of rubber products and will give a picture of the extent and diversity of the industry, the raw materials used and their properties, the processes employed and the effects of compounding and vulcanization. The afternoon session will be devoted to consideration of the properties of rubber as an engineering material. The papers will cover such fields as flexing service, shock and vibration absorption, resistance to wear, electrical insulating properties, resistance to chemicals, oils, water and gases and the properties of rubber as an adhesive. It is expected that in this symposium authoritative information concerning the manufacture and properties of rubber products will be given in such form as to be readily valuable to the many engineers in industry who are users of rubber products but are not necessarily rubber technologists.

Du Prene

(*Continued from page* 214)

more light on this subject, and if the results of these tests are satisfactory it is not improbable that Du Prene may be used for pneumatic tires for special purposes for which it may be sufficiently better than natural rubber to justify its added cost. This statement also applies to many other rubber products that are used under such service conditions as to require the highest possible degree of abrasion resistance.

Compounding Ingredients for Du Prene

Substantially all of the compounding ingredients that are used in natural rubber may be added to Du Prene if desired. In addition, there are many compounding ingredients, such as ground leather, that are suitable for use in Du Prene but unsuitable for use in natural rubber because they retard vulcanization. Du Prene Latex for use as an impregnating and coating compound may be modified by the addition of casein, glue and other nitrogenous materials.

Zinc oxide finds use as an accelerator of polymerization or vulcanization. Magnesium oxide and other basic ingredients, both organic and inorganic, act as stabilizers, that is, they react with any traces of hydrogen chloride that may be liberated due to oxidation of the Du Prene. Chemicals of the type of benzidine, meta-toluylenediamine, etc., function as accelerators of polymerization or vulcanization and, being basic, may also serve as stabilizers. All these ingredients may be added to Du Prene latex in emulsion form or milled into the plastic polymer in the usual manner.

The information in this article was furnished by members of the du Pont organization who point out that although many of the applications of Du Prene suggested herein have been tried out in the laboratory and in a few cases on a plant scale it is nevertheless too early to state that Du Prene will be commercially used for all the purposes mentioned, because in all cases the advantages of Du Prene over ordinary rubber must be weighed against its disadvantages for the purpose in question and also, of course, against the difference in cost.

LOS ANGELES*—

the Growing Rubber Center of the Coast

It Is Now Only Second to Akron as a Rubber Goods Manufacturing City

Airplane View of Los Angeles With Goodyear Plant in Center

THE development of the rubber industry on the Pacific Coast began with the organization of the Samson Tire & Rubber Company and the building of a small tire-manufacturing plant at Compton, about ten miles south of Los Angeles. This took place in 1917, and aside from this one organization there were at that time, only a few small mechanical goods plants making molded rubber products for the plumbers' trade and for the oil-well supply houses.

From a small beginning, the Samson company went through a period of healthy growth, acquiring the former Savage plant located at San Diego. The disadvantages of operating two plants so widely separated and the additional business demand led to the building of a modern $8,000,000 plant at Los Angeles. This plant was built in 1929 and shortly thereafter the United States Rubber Company entered this locality by affiliation with the Samson company and became the last of the large tire producers to locate on the Pacific Coast.

In 1919 the Goodyear Tire & Rubber Company established a factory on the site of the old Ascot Speedway for the manufacture of tires and tubes for distribution in the western territory. At the same time this company established a textile mill for the manufacture of cotton fabric and cord necessary for the production of tires.

Due to the post-war adjustments, little further expansion was made in the rubber industry until in 1927, when Goodrich and Firestone started their Pacific Coast plants. The former located a $5,000,000 plant on the east side of Los Angeles, the ultimate in straight-line production methods, and a high-efficiency rating in the production of tires and tubes has been maintained.

The Firestone company located on the south side of the city with an initial daily production of 5,000 tires and tubes. Its facilities were almost immediately increased to the present capacity of approximately 12,500 units. Firestone also built a modern reclaiming plant.

The importance of the local manufacture of tires and tubes is indicated by the fact that for the calendar year of 1930, production carried on by the four major establishments, employing approximately 5,100 people with an annual payroll of $8,500,000, amounted to a total value of $53,500,000. These figures do not include the minor group doing a sizable volume in molded goods and repair stocks.

The Los Angeles district in volume and value of its rubber manufacturing easily ranks second in importance as a world rubber center. This district, as compared with any other rubber-producing section of the United States, offers peculiar advantages for the economical concentration of raw materials and distribution of finished products.

In addition to this particular saving, the scale of labor offers an outstanding inducement over other sections of the United States and, together with satisfactory and available raw materials, permits of manufacturing costs considerably under the standard costs of eastern plants. It has been pointed out that tires can be produced in this district and transported to Atlantic seaboard at the same cost if not at a saving over products made at Akron and placed in the same Atlantic seaboard warehouses. Oceanic rates from Los Angeles to the Orient and Australia are considerably less than from Baltimore or New York, and rates to Europe by the Panama Canal are on a par or substantially better than from Akron.

The estimated daily production capacity of the combined four major companies is approximately 45,000 tires and 50,000 tubes, which will give employment to approximately 10,000 people and disburse an annual payroll of approximately $18,000. Aside from this production there is a reclaiming capacity of approximately 2,500,000 pounds per month divided among Xylos Rubber Company, a subsidiary of Firestone and located at Los Angeles; the Pacific R. & H. Chemical Company, located at El Monte; and the Pioneer Rubber Mills, located at Pittsburg, California.

A further evidence of progress in rubber manufacturing in the Los Angeles district is evidenced to a considerable extent by the increased imports of crude rubber and outgoing shipments through the harbor of finished rubber products.

Shipments of tires and tubes for 1930 were as follows: foreign export, 4,500 tons, valued at $3,422,000—to Hawaii, 1,417 tons valued at $870,000; to intercoastal points, 1,737 tons valued at $1,528,000; to coastwise points, 10,791 tons, valued at $9,643,000.

In addition to the concentrated activity of the rubber industry in the Los Angeles district, there are rubber plants for tires, mechanical goods, and molded goods located in the North Pacific states. The outstanding plants are the Cord Tire Corporation, at Portland, Oregon; the Coast Tire & Rubber Company, at Oakland, California and the Pioneer Rubber Mills, manufacturing mechanical goods, located at Pittsburgh, California.

*Reprinted from *Chemical & Metallurgical Engineering*, Nov. 1931, to which due acknowledgment is given. The article was by W. R. Hucks of the Pacific Goodrich Co., Los Angeles, California.

EDITORIAL COMMENT

Malicious Tire Prices

THE recent reduction in tire prices is totally non-understandable at the present time. Sanity seems to have completely left the industry. The absence of any effective cooperative force or efficient leadership within the industry has never been more glaringly demonstrated. The situation shows an utterly chaotic condition, verging on the panicky, existing throughout the industry just at a time when constructive thought and sound judgment should prevail, when a Harriman, a Morgan or a Rockefeller should rise from the tottering structure of the industry to buttress its industrial edifice and reinforce the foundations of such an important national asset.

No excuse for this price cut seems plausible. A reduction in prices will not sell any more tires. The old worn-out excuse that a reduction was necessary to meet mail-order prices does not exist in this case. And, anyway, that was always a lame excuse, in as much as the very firms who participated in reducing were the ones chiefly supplying the mail order houses. Tire quality is better than ever. More mileage is obtainable. Less cost for maintenance, due to repairs, is necessary. The user of tires today is getting more than his money's worth and was before this new tire price reduction. But inversely the supporter of the industry, the stockholder, the wage-earner and the tire dealer and jobber-distributor is not getting his just return on his investment.

Cutting the price of a worthy article at this time to a price barely, if even equal, to the cost of production is bound to react on the morale of the industry and all who handle its product. It is true that costs of raw materials have declined, particularly crude rubber and cotton. But such a decline is, in the last analysis, not a justifiable one. Plantation owners cannot continue to produce at the present levels and a rise in crude rubber and cotton is inevitable. Realizing that their own industry has made no profits to speak of for the last two years, is there justification for the leading executives of the manufacturing industry to penalize their companies further by deliberately sacrificing a fair and just profit by cut-throat price slashings?

There was no public demand for cheaper tire prices. Every car owner knows he was getting bigger and better value out of his tires than ever before. Down in his heart, every car owner wants to see the tire industry prosper in the same sense that he wishes to have his own business a success. The tire consumer has no desire to see the tire industry lose. This vicious cutting of price at this time can not be excused on any grounds and will undoubtedly react unfavorably to the industry as a whole.

Is it impossible to find that leadership, within the industry, which will bring the rubber manufacturing business of the nation to a sane footing? What are the forces within the industry which have proved so destructive to any cooperative effort? Must the industry continue to sacrifice its investors, its wage-earners, its dealers and distributing agents because of lack of sound business judgment from the men at the helm, who have so seemingly failed to qualify as expert pilots of the industry.

Weathering the Depression

TRADE associations apparently are weathering the storms of depression fairly well, indicating that the business man is making his necessary economies in other directions. Figures obtained by the Trade Association Department of the Chamber of Commerce of the United States show that in 1930 there was loss of only 1 per cent in trade association membership, as compared with 1929, the peak year.

The figures regarding the annual turn-over which the Department has been able to assemble are significant. They show that though membership gains average around 10 per cent, membership losses are about 8 per cent a year. Reasons aplenty can be assigned, mergers, failures, change of a company's product,—these are more or less inevitable, but there is another cause, the failure to make the new member a true convert, to make him realize the importance of the trade association, to make him believe in it, believe that he can get his money's worth from it and that it is necessary for him to work in it and with it to accomplish that result.

The RUBBER AGE

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

NEW RUBBER MOUNTINGS FOR LATEST CHEVROLETS

The 1932 Chevrolet models, introduced to the public by the General Motors Corporation on December 5, reveal improved rubber engine mounting and a larger tire section but a smaller wheel diameter. The tires on the new car are 5.25 x 18 balloons, whereas the 1931 Chevrolet used the 4.75 x 19 size.

Rubber engine mountings that are semi-resilient noise and shock insulators are fitted. At the points of suspension the rubber is securely restrained from excessive movement by stamped retainers, which also protect the rubber from oil and rubber.

On the engine side of the dash a rubber mounting block with a hole for each pipe or control conduit is contained in the steel stamping to insulate the connections from vibration. An entirely new method of mounting the front fenders, radiator and headlamps is used on the new car. A single fender support unit holds these parts at a neutral point in the center of the frame front cross-member. This support is insulated from the frame by a rubber cushion and is held in place by two bolts spaced relatively close together at the center.

CALIFORNIAN FIRESTONE JUMPS OUTPUT, ADDS MEN

In keeping wih the Firestone Tire & Rubber Company policy of adding men instead of increasing the working hours of those employed, the Los Angeles factory resumed six-hour shifts at the end of last month. The change, it was said, adds 350 men to the 1,200 previously carried on the payrolls there. Men laid off during the last two years were given preference for the new jobs.

This follows a general practice in the Akron plant, Firestone officials stated. Rather than run on eight-hour shifts, more men have been hired to balance the production rate and shifts of six hours or less employed.

Goodyear Starts New Blimp

Work on a new 112,000-cubic foot airship has been started at the factory of the Goodyear-Zeppelin Corporation. The new blimp, which will be named the Resolute, will be a duplicate of the Reliance, which was placed in service last month. The size is the one that has been found best suited to the type of of work in which the fleet of the Goodyear Tire & Rubber Company engages.

Rubber Division Meeting

The Rubber Division of the American Chemical Society will hold its next meeting at Detroit, Mich., on February 25 and 26. The Fort Shelby Hotel has been selected as headquarters for the Division. This session will be separate from the spring meeting of the American Chemical Society, which is scheduled for March 28 to April 1 at New Orleans, La.

Show Tires at Auto Salon

The 27th annual Automobile Salon was held at the Hotel Commodore, New York City, from November 29 to December 5, with exhibits of thirteen foreign and domestic cars and specimens of coachwork by the leading manufacturers. Sales at the show were reported to have run over $1,000,000. Exhibits of Martin tires by the Custom Built Tire Corporation of America and of Para tires by the Para Tire Company of New York, Inc., were features among the displays of accessories and related items. Casings in all sizes were shown, together with cross-sections.

Seiberling Pays $750,000 Notes

The Seiberling Rubber Company has paid off $750,000 par value 6 per cent gold debentures which matured November 15. The debentures were issued in the fall of 1930 in the amount of $3,100,000, maturing over three and one-half years.

Goodyear Blimp Safety Record

In its report on the operation of its airships, the Goodyear Tire & Rubber Company points out that there have been approximately 63,000 passengers carried up to the present time without an injury to a passenger. The company is soon to add to its fleet a new 112,000 cubic foot blimp which will be known as the Resolute.

Lycoming Rubber is Busy

Tentative production schedules for December at the Lycoming Rubber Company, Williamsport, Pa., plant of the United States Rubber Company, promise to keep that unit exceptionally busy on the manufacture of gaiters, gum shoes, Keds and sport sandals, as well as other types of waterproof footwear. Output in November reached a record of 50,000 pairs of footwear each day and required the employment of two shifts daily to meet the schedules.

RUBBER FIRMS EXHIBIT AT MEA-NSPA TRADE SHOW

The joint trade show of the Motor and Equipment Association and the National Standard Parts Association, together with the annual conventions of these organizations, opened at the Municipal Auditorium, Atlantic City, N. J., on December 5 and will continue until December 12. Attendance has been large and interest in the exhibits displayed has been greater than usual.

Among the manufacturers of rubber products and related items exhibiting are the United States Rubber Company, Gates Rubber Company, Baldwin Rubber Company, Holfast Rubber Company, Allbestos Company, Dill Manufacturing Company, E. I. du Pont de Nemours & Company, L. H. Gilmer Company, Las-Stik Manufacturing Company, McKay Company, Multibestos Company, Raybestos-Manhattan Company, A. Schrader's Son, Inc., Thermoid Rubber Company and Van Cleef Brothers.

SWAN RUBBER COMPANY ELECTS NEW OFFICERS

The Swan Rubber Company, Bucyrus, O., effected a complete reorganization of its board of directors and its financing program at a special meeting of stockholders on November 21. Mort G. Nussbaum, clothier of that city, was elected president and treasurer to succeed H. A. Paxton.

Members of the board of directors include Mr. Nussbaum, Robert W. Priebe, Isaac Nussbaum, J. M. Strelitz and E. W. Wood. Company officials state that the volume of business has been satisfactory during the present year, with favorable prospects for increased business in 1932. The plant employs 40 persons.

Workmen are now equipping a new department in the plant, which will occupy 8,000 square feet of floor space. Brake lining for automotive and industrial purposes will be manufactured in the new department.

Eleven sales offices are maintained by the company.

Completes Large Belts

The Republic Rubber Company, Youngstown, O., has completed two conveyor belts, each 1,115 feet in length, as part of a large order covering equipment for the new plant of the Thunder Bay Quarries Company, Alpena, Mich. The belts are 54 inches wide and of eight-ply construction. Each weighed 23,475 pounds when packed for shipment.

UNITED CARBON COMPANY LOSES $39,741 IN QUARTER

The United Carbon Company and subsidiaries report for the quarter ended September 30, 1931, a net loss of $39,741 after depreciation, depletion and other charges, comparing with a net loss of $56,546 in the preceding quarter and with a net profit of $208,214 in the third quarter of last year.

For the nine months ended September 30, 1931, the net loss was $74,029 after charges. This compares with a net profit of $676,443 in the first three quarters of 1930. The company's consolidated balance sheet as of September 30 shows current assets, including $598,474 cash, of $3,883,135 against current liabilities of $996,495.

NEW DIRECTORS ELECTED BY MONSANTO CHEMICAL

L. F. Nickell and G. Lee Champ have been elected to the board of directors of the Monsanto Chemical Works to succeed James H. Becker and Howell W. Murray, who have resigned. Directors approved the proposal to change the name of the company's English subsidiary from the Graesser-Monsanto Chemical Works, Ltd., to Monsanto Chemical Works, Ltd., on January 1.

Monsanto directors on November 23 inspected the new plant of the Merrimac Chemical Company at Everett, Mass. They were accompanied by Merrimac directors and directors of the Rubber Service Laboratories Company, both Monsanto subsidiaries.

Servus New York Office

The Servus Rubber Company, Rock Island, Ill., has opened a sales office at 200 Church Street, New York City, with James A. Clark in charge. Mr. Clark, who will have full charge of Servus New York sales, has been connected with the rubber footwear industry since 1925 and from 1928 to 1930 was eastern sales manager for the B. F. Goodrich Company.

India Stockholders Meet

Stockholders of the India Tire & Rubber Company met in special session at the offices of the company in Mogadore, O., on December 8 and extended the terms of the present directors until the next annual meeting in December, 1932. It was necessary to change the date of the regular meeting of the stockholders because the fiscal year of the company has been changed to end October 31 instead of December 31.

Goodyear Wins in $100,000 Suit

An Akron Common Pleas Court jury on November 18 returned a verdict for the Goodyear Tire & Rubber Company in a $100,000 damage suit filed against it by Mrs. Florence Thompson, of Cleveland. Mrs. Thompson asked that amount for the death of her husband who was killed when his automobile collided with a Goodyear test car at Kipton, O., in 1929.

W. Clyde Weachter

W. Clyde Weachter, for nearly 34 years an employe of the B. F. Goodrich Company, died at his home in Akron, O., November 15. For the past 13 years he had been in charge of the employment of women for the Goodrich factory and previous to that he was foreman in the Goodrich bicycle tire production department.

Rainbow Tire Plant is Sold

The plant of the Rainbow Tire & Rubber Company, Delaware, O., was purchased at a sheriff's sale November 14 by Frank P. Milner, of Columbus, O., for $16,000. Mr. Milner, who holds a mortgage against the property, had brought the foreclosure suit which resulted in the sale. The plant was previously offered for sale on October 3, but no bids were received at that time.

Flintkote Earns $159,000

The Flintkote Company has reported for the ten months ended October 31 net profit of approximately $159,000 after depreciation and taxes, as compared to $156,000 in the same period of 1930. Operations for the third quarter showed net profit of about $217,000 against $452,000 for the like quarter of 1930. The company has lately been doing considerable experimental work with rubber dispersions, but has not as yet made any announcement as to the results of its researches.

General Cable Cuts Capital

At a special meeting December 16, stockholders of the General Cable Corporation will vote on a plan to reduce the stated values of the class A and common stocks by $7,000,000 to $10,280,881. Earlier resumption of dividends on the preferred and class A stocks will be possible if the plan is consummated, it is stated. Estimates, based on data for October, indicate a deficit at December 31 of $5,801,601. The amount by which capital is reduced will be credited to surplus, but the directors do not intend to use any part of this for dividends.

FORD CO. LOSES $30,000 IN L. ALBERT & SON SUIT

The verdict of $30,000 returned against the Ford Motor Company, Detroit, Mich., in favor of L. Albert & Son, Trenton, N. J., last January has been upheld by the Supreme Court at Trenton, N. J. The judgment was rendered against the Ford company for failure to deliver used rubber machinery which the Trenton firm had purchased.

The plaintiffs testified in the original trial that they contracted to purchase the machinery from the Ford company in February, 1930, and that it was to be delivered from that company's plants at Detroit, Highland Park, River Rouge and St. Paul. It was alleged that the Ford company had made delivery of only a small part of the equipment sold and had put the remainder back in operation at its River Rouge or Dearborn plants.

COLUMBIAN CARBON NETS $1,406,015 IN NINE MONTHS

The Columbian Carbon Company and subsidiaries report for the nine months ended September 30, 1931, net income of $1,406,015 after taxes, depreciation, depletion and minority interests, equal to $2.61 a share on 538,420 no-par shares of stock. This compares with $2,038,455, or $4.09 a share on 498,505 shares, in the first nine months of 1930.

Net income for the quarter ended September 30 amounted to $546,283, comparing with $299,231 in the preceding quarter and with $445,274 in the third quarter of last year.

Stock Price Average Drops

The 18 rubber and tire company issues listed on the New York Stock Exchange on November 1 showed a total of 12,283,169 shares with a market value of $183,214,394, or an average price of $14.92 a share. This compares with the October 1 average price of $15.00 and shows the steady decline since last March when the average was $25.06. Prior to that date there were 19 issues listed, and a comparison in figures is, therefore, impossible. At the bull market peak in April, 1929, the 18 issues then listed showed a total of 9,290,447 shares with a market value of $585,625,941, or an average price of $63.04 a share.

RUBBER SHARES DECLINE WITH REST OF MARKET

Shares of the leading rubber manufacturing companies ended the fortnight registering losses in most instances, similarly to the remainder of the market which touched new low levels in the period. Both the common and preferred of United States Rubber sank to new lows, as did Goodyear preferred. Goodyear common was down more than six points, and other issues were off from one to three points.

Closing prices of the stocks of the principal companies in the industry on December 5, compared with the close on November 19 and with the high and low thus far reached in 1931, are shown in the following table:

	Last Price		—1931—	
	Dec. 5	Nov. 19	High	Low
Aetna	—	—	5	2
Ajax	—	—	½	¼
American Hard Rubber	—	—	35¼	30
Dayton "A"	—	—	—	—
Faultless	—	—	37	29
Firestone	14	—	21½	13
do. 6% pfd.	51¾	54	66¼	50¼
Fisk	¼	¼	⅞	¼
do. 1st pfd.	½	—	3	½
General	—	53½	140	50
do. pfd.	—	—	87½	64⅞
Goodrich	5¾	7	20⅞	5
do. pfd.	19	21½	68	15
Goodyear	19¼	25½	52¾	16
do. 1st pfd.	—	—	91	57½
India	8	—	13½	6
Intercontinental	—	—	4½	¼
Kelly-Springfield	—	1¾	3½	¾
do. 6% pfd.	—	26	45	10
Lee	—	—	4¾	1¾
Mohawk	—	—	8	1¾
do. pfd.	—	—	35	25
Norwalk	—	1⅛	2	½
Pirelli	—	—	39¾	26½
Raybestos-Manhattan	11½	12½	29½	9½
Seiberling	—	—	50	32
do. pfd.	—	—	10⅜	4¼
U. S. Rubber	4⅞	6¾	20⅜	4⅛
do. pfd.	8½	11⅞	36¼	8

WOOSTER RUBBER PLANT IS DAMAGED BY BLAZE

Fire following an explosion destroyed machinery valued at $4,500 and a large amount of stock at the factory of the Wooster Rubber Company, Wooster, O., on November 13. The fire is thought by company officials to have started when fumes from curing equipment came in contact with a spark from an electric motor. It was extinguished by firemen after an hour and a half.

About 40,000 balloons which had been made but not cured were destroyed, and other supplies were badly damaged by water from the automatic sprinkling system. This is the third fire in that department of the company in the past two years.

Chardon Company Pays Dividend

Stockholders of the Chardon Development Company, organized four years ago to acquire the plant which houses the Asplin Basket Factory and the Chardon Rubber Company, held its annual meeting October 20. In addition to electing a board of directors, the company declared a dividend of $24 on each share, payable at once. The new board includes C. W. Canfield, president; G. L. Chapman, vice-president; Robert S. Parks, secretary; C. N. Quirk, treasurer; N. M. Goodrich, H. C. Bickle, B. Kile and G. L. Chapman, directors.

Form Industrial Service Firm

The firm of Sheldon, Morse, Hutchins & Easton, 191 West 10th Street, New York City, has been organized to render a sales research, advertising and publicity service. Members of the firm include Dr. H. H. Sheldon, of New York University; H. A. Morse, former managing editor of *Building Age;* L. W. Hutchins, public relations director for the Swann Chemical Corporation; and Dr. W. H. Easton, formerly of the advertising department of the Westinghouse Electric & Manufacturing Company.

Shell to Sell Goodrich Tires

Service stations of the Shell Petroleum Company in the Indiana division will in future sell and service tires manufactured by the B. F. Goodrich Company. More than 100 filling station operators attended a meeting November 24 and heard talks by Shell and Goodrich officials. It was announced that 15 stations have already been stocked with Goodrich tires and that the remainder will be so equipped in the next few weeks.

Goodyear Loses Overman Appeal

The United States Court of Appeals at Cincinnati, O., has denied a motion by the Goodyear Tire & Rubber Company attorneys for an injunction restraining the Overman Cushion Tire Company from prosecuting patent infringement suits in other jurisdictions. The motion had previously been denied in the United States District Court at Cleveland, O., and Goodyear carried the matter to the appeals court.

New Rubber Goods

Red Head Recoil Pad

The Red Head gun recoil pad of solid molded rubber is the newest item in the line of the Red Head Brand Company, 925 West Chicago Avenue, Chicago, Ill., successor to the Alward-Anderson-Southard Company. The body of the pad is of a high grade molded rubber in red color and the base is of hard black rubber. The right curvature and thickness of opposing walls of tubes give easy compressibility, according to the manufacturer, and the curvature in opposed directions absorbs recoil in straight-back direction and prevents diagonal kick-back. The longitudinal central wall is said to prevent diagonal recoil and upward movement and is thin enough to fold when the outside wall is pressed in. The space between tubes permits tube walls to spread easily, permitting uniform compressibility to full limit until forward and outer walls meet. The pad is offered in two sizes to fit all types of guns.

Krackle Stripe Balloon

As a companion number to its Krinkle Dot balloon, the Oak Rubber Company, Ravenna, O., has introduced a new and unique

design under the name of the Krackle Stripe. The novel and fanciful decoration presents a "flash" that immediately attracts the eye. Each balloon is printed with six of the decorative stripes in two and three colors. This balloon is offered in two sizes, the larger of which inflates to a diameter of 11 inches and the smaller to a diameter of 10 inches.

Walco Rubber Wrench Handle

The Walco wrench, made by the Walworth Company, Statler Building, Boston, Mass., has recently appeared on the market equipped with rubber handles. In the ten-inch and fourteen-inch sizes, the rubber handle is the successor to the wooden handle previously used on the company's Stillson wrenches but abandoned in the case of the Walco. Wooden handles were rendered undesirable by a new process of making the Walco wrench with the aim of providing strength and simplicity. Since on the smaller sizes, wrench users, in many cases, prefer some sort of protective covering, it was decided to use rubber handles, and these are being received by the trade as quite an improvement over the wooden handle.

Indiana Satin Finish Savoy

The latest addition to the Ball-Band line of light rubber footwear by the Mishawaka Rubber & Woolen Manufacturing Company,

Mishawaka, Ind., is the Indiana Monopul Savoy in satin finish. The Indiana satin finish, according to the manufacturer, is remarkable for the sparkling high lights that alternate with soft, deep shadows to produce a rich changeable effect. This type is offered in black and Indies brown with rubber ornament on the strap and an invisible slide fastener. The Indiana light rubber Savoy is also made in snap fastener style.

CENTRAL RUBBER SELLS FORMER HILAB PRODUCTS

The Central Rubber & Supply Company, Indianapolis, Ind., will in future supply to the trade HiLab fan belts, radiator air and water hose, universal joint discs, clutch facings and other rubber and leather automotive products. Following the death of W. G. Snider, president of HiLab Products Company, both the rubber and leather divisions of HiLab Products and the Hide, Leather & Belting Company were purchased by the Central Rubber & Supply Company.

Ralph R. Hyatt, sales manager of the automotive division of Central Rubber, states that a strict jobber sales policy is to be maintained, advertising is to be resumed, and the line widened still further.

Need experienced help? See page 227.

MANY MOTION PICTURES PRODUCED BY GOODYEAR

Appreciating the value of the motion picture film as a teaching medium, the Goodyear Tire & Rubber Company has for several years produced and distributed motion pictures free of charge to schools, colleges and universities, as well as to churches, lodges, clubs, societies and other organizations.

The Goodyear company has just issued a new film catalogue, with twenty-three subjects listed. Some of these deal with the growing of plantation rubber and cotton for the manufacture of various products, and many scenes show the principal operations in the making of the products in the mills and factories.

The manufacture of racing balloons, nonrigid airships and rigid airships also is included. One of the most interesting pictures shows the construction of the U.S.S. Akron, largest airship in the world, which was recently delivered by Goodyear to the Navy.

Another film of unusual interest portrays the construction of the huge dock in which the U.S.S. Akron was built. This is the largest building in the world without interior supports. The second great ship for the Navy is now under way in this giant structure.

The Goodyear motion pictures are not of the advertising type, but, on the contrary, are devoid of any flavor of sales propaganda, in that they embrace engineering, chemistry, geography, history, agriculture, health, travel, biology and other subjects included in school and college curricula.

Queen City Rubber Receiver

As the result of a suit filed recently by the Buffalo Weaving Company, Buffalo, N. Y., against the Queen City Rubber Company, Cincinnati, O., the latter firm has been placed in receivership by the Common Pleas Court. Judge Stanley Struble appointed V. Rowland Shepard as receiver for the rubber company.

Firestone Sells Airplane

The Firestone Tire & Rubber Company sold its tri-motored Ford plane to American Airways late last month for a consideration, according to newspaper reports, of between $20,000 and $25,000. Sam Taylor, pilot, will enter the Firestone sales department and Co-Pilot Ed Quigley will be employed in the company's machine shop.

Grasselli Increases Force

Sixty-five men have returned to work at the Niles, O., plant of the Grasselli Chemical Company, subsidiary of E. I. duPont de Nemours & Company, after several months of idleness. Employes of the plant, which manufactures sulfuric acid, are working on four 6-hour shifts.

Drop Foote-Dodge Merger

The proposed merger of the Foote Brothers Gear & Machine Company with the Dodge Manufacturing Company has been abandoned, according to a statement issued late last month. Each company will continue its own business under its own name as heretofore.

Names in the News

F. D. CHITTENDEN has been transferred from the General Laboratories of the United States Rubber Company, Passaic, N. J., to the General Products Department of the company at Providence, R. I.

F. A. BANBURY, inventor of the Banbury mixer, and Mrs. Banbury have returned to the United States after a briet visit to England last month.

ERIC C. A. WALKER, of the rubber dealing firm of Keith Bon & Company, has been admitted to the privileges of membership in the Rubber Exchange of New York, Inc.

E. C. KNOX, of the Firestone Tire & Rubber Company; H. J. CARROLL, of the Goodyear Tire & Rubber Company, and H. J. ZIMMERMAN, of the B. F. Goodrich Company, attended the conference of the National Industrial Traffic League at Chicago, Ill., on November 18 and 19.

R. C. BROWN, sales manager of the elastic web division of the Russell Manufacturing Company, has moved his headquarters from the New York City office of the company to the factory at Middletown, Conn.

J. R. HOOVER, for two years manager of the general chemical laboratories of the B. F. Goodrich Company, has been appointed to the chemical sales division of the company. L. M. FREEMAN becomes the new manager of the laboratories.

P. J. KELLY, advertising manager of the B. F. Goodrich Company, was re-elected vice-president of the Association of National Advertisers at the annual meeting of that organization November 17, at Washington, D. C.

GOODRICH MERGES SALES IN EAST AND MIDWEST

Combination of the eastern and central sales divisions of the B. F. Goodrich Rubber Company has been announced by C. B. O'Connor, general tire sales manager. Robert McTammany, central division manager, will direct activities of the combined territories to be known as the eastern division. The new division includes New York, Boston, Philadelphia, Cincinnati, Detroit and adjacent territory. The combination follows the recent death of George B. Campion who was eastern division manager.

A new southeastern division also was announced, with H. B. Thackston, former district manager at Atlanta, Ga., taking the position of division manager. Headquarters of the southeastern division will be in Atlanta, while Mr. McTammany's headquarters will be in Akron.

F. A. MEURIN, southwestern district sales manager for the B. F. Goodrich Company, with headquarters in Dallas, Tex., was presented with a 20-year service pin during a company sales conference at Akron last month. Mr. Meurin was formerly San Antonio branch manager and district manager at St. Louis.

DR. KARL ARNSTEIN, vice-president and chief engineer of the Goodyear-Zeppelin Corporation, sailed from New York for Germany on December 2. He will go to Friedrichshafen to discuss airship problems and learn the plans of the Luftschiffbau-Zeppelin in connection with that company's new ship LZ-129, which is being built for trans-Atlantic commercial service. Dr. Arnstein will spend the Christmas holidays at Prague with relatives and will return to Akron January 24.

J. EARL GULICK, staff superintendent of the B. F. Goodrich Company tire division for the past three years, has been appointed to sales work under G. E. Brunner, manager of the specialized sales department. Mr. Gulick has been associated with the rubber industry since his graduation from Akron University. He went to Goodrich in 1927. D. D. Reichow, a tire division employee for six years since his graduation from the University of Iowa, succeeds Mr. Gulick, it was announced by E. H. Barker, general superintendent of the division.

WILLIAM O'NEIL, president of the General Tire & Rubber Company, led a round table discussion at one of the sessions of the three-day conference recently held by the Employment Stabilization Research Institute of the University of Minnesota at Minneapolis. In his own address at the conference, Mr. O'Neil blamed unwarranted industrial expansion, financed by easy money in boom times, for much of the nation-wide depression.

J. B. LEE has been appointed in charge of the sales staff for British Columbia of the Seiberling Rubber Company of Canada, Ltd., with headquarters at 518 Beatty Street, Vancouver, B. C. He has had 12 years of experience in the tire and automobile industries in eastern Canada.

C. C. SLUSSER, vice-president and factory manager of the Goodyear Tire & Rubber Company, issued a statement last month in favor of early action to supply cheap industrial water in East Akron and declared that toward that end he would offer all the information at his command immediately after the new administration of the City of Akron comes into office on January 1. He stated that Goodyear is "going to have to take a great part of our production out of Akron next spring—to Los Angeles and other plants where water is cheap and adequate."

Current Crude Rubber Items

INSURANCE MEN COMMENT ON ALL-RUBBER CARGO

A good deal of comment is being made not only in shipping circles but also in insurance quarters on the chartering of the Norwegian cargo vessel Siljestad to carry a full cargo of 7,100 tons of rubber from the Straits Settlements to New York, according to the *Times Trades and Engineering Supplement* of London. Hitherto consignments of rubber have been forwarded by the regular liners, together with other commodities, and the rate of freight quoted for the cargo vessel is known to have been below that hitherto quoted for consignments by the liners. The incident illustrates the well-recognized fact that it is possible for a fully laden cargo steamer to carry merchandise at a lower cost for a single voyage from port to port than the cost to the liner companies of maintaining regular services, whether the ships are full or not. The liner companies enter into commitments to provide regular services which the owners of ordinary cargo ships do not assume.

Another interesting point raised is what effect, if any, the loading of a cargo vessel with rubber would have upon the individual cases in which the rubber is packed. Many claims have occurred through the breaking of the wooden cases in which the rubber is carried by the regular liners to New York. These claims were paid until they became so numerous that the companies decided that they could not continue to pay them, since they alleged that the cause was inadequate packing. Marine underwriters have been asked, therefore, to make good the damages, and they are now considering the question of how the number and amount of these claims are likely to be affected, if at all, by the unprecedented dispatch of a vessel carrying a valuable cargo of rubber alone. Some years ago representations by the shipping lines brought about the better packing of rubber consigned to England, but a corresponding improvement does not seem to have been secured in the shipments to the United States.

RUBBER EXCHANGE SALES INCREASED IN NOVEMBER

Transactions in crude rubber on the Rubber Exchange of New York, Inc., during the month of November increased more than 100 per cent over October, despite the fact that last month was shorter and that it had only 23 business days. November rubber sales also were substantially in excess of November last year.

Sales in all three contracts on the exchange amounted to 26,027½ long tons, the best month of the year in that respect, and an amount which is equivalent to 58,301,600 pounds.

Transactions during the previous October totaled 12,702½ tons, while those for November, 1930, amounted to 17,350 tons.

New Rubber Exchange Members

Upon the recommendation of the Committee on Membership of the Rubber Exchange of New York, Inc., the Board of Governors has elected the following to privileges of membership in the exchange: Claude W. Peters, Hayden, Stone & Company, 25 Broad Street, New York City; Adrian Ettinger, of Ettinger & Brand, 200 National City Bank Building, Cleveland, Ohio; and Henry B. Van Sinderen, 19 West 44th Street, New York City.

LOS ANGELES RECEIVES LARGER RUBBER IMPORTS

The proportion of the country's imports of crude rubber which was received at Los Angeles showed a marked rise in the first nine months of 1931, while that for New York revealed a decline in the same period. New York imports were 665,471,534 pounds, or 82.19 per cent of the country's total, as compared to 85.76 per cent in the first three quarters of last year. Los Angeles received 67,515,898 pounds, or 8.34 per cent of the total for the nation, as against 6.33 per cent in 1930.

The 35,625,265 pounds which went to Massachusetts and the 18,158,144 pounds which were landed at Maryland ports also represented larger percentages of the total for the United States than in 1930. Smaller gains were shown by the customs districts of Philadelphia, Mobile and Virginia.

SHIPMENTS FROM MALAYA ROSE DURING NOVEMBER

Gross shipments of crude rubber by British Malaya during November rose to 48,012 tons. Such exports by Malaya, the largest of rubber producing countries, have been increasing steadily since last August, when the total shipped was 42,832 tons.

The October shipments were 45,911 tons, and those during November last year, 41,281 tons.

Ceylon exported 4,853 tons last month to all countries, compared with 5,102 tons during October, and with 6,275 tons in November, 1930.

Rubber shipped to the United States by British Malaya during November reached the total of 36,049 tons, showing another gain over the previous month, and a substantial increase over those for November last year.

The October crude shipments to this country had totaled 32,872 tons, and those in November, 1930, over 22,200 tons.

Malayan exports to other countries were: United Kingdom, 4,242 tons against 4,529 tons in October; British possessions, 687 tons, against 872 tons in October; the Continent, 3,852 tons, against 4,743 tons; Japan, 2,158 tons, against 1,802 tons, and to other countries, 781 tons, against 804 tons during October.

MALAYAN RUBBER OUTPUT LARGER DURING OCTOBER

October production of crude rubber of all grades on estates over 100 acres in size in Malaya totaled 21,191 tons compared with 20,240 tons in September. Total stocks on the same estates were 20,295 tons on October 31, compared with 22,036 tons on September 30. Gross exports, duty paid, in October were 34,749 tons compared with 35,633 tons in September. Exports as declared, including re-exports, totaled 29,749 tons against 28,136 tons in September.

While Malayan rubber shipments to the United Kingdom and Japan decreased in October, those to the United States increased to 32,872 tons as against 29,476 tons in September and 24,999 tons during October, 1930. Other shipments were: to the United Kingdom, 4,529 tons against 5,204 tons in September; Japan, 1,802 against 3,791; Continent, 4,743 against 4,334; British possessions, 872 against 602; and to other countries, 804 tons against 774 in September.

A group of 615 producing companies reporting to the Rubber Growers' Association show a production for October of 23,112 tons as against 21,736 tons in September. For the ten months of 1931 this group reports output of 215,906 tons against 214,676 tons in the same period of 1930. Those companies in Malaya and the Dutch East Indies continue to show higher outputs than last year, while those in Ceylon, British North Borneo, India and Burma reveal reductions.

Another comparison made by the Commercial Research Department of the Rubber Growers' Association shows that 205 companies increased their output in October as against October, 1929, while 330 companies reduced their production.

PRICE DIFFERENTIALS ON RUBBER EXCHANGE

The adjustment committee of the Rubber Exchange of New York on November 16 fixed the price differentials between the various grades of Hevea plantation rubber which shall prevail on all deliveries against old "A" contracts for the month of December as follows: off quality first latex crepe at one-tenth of a cent per pound; good F. A. Q. ribbed smoked sheets at two-tenths of a cent per pound; ordinary F. A. Q. ribbed smoked sheets at thirty-five one-hundredths of a cent per pound.

The committee on November 24 fixed the differentials for the new "A" contracts in December as follows: No. 2 crepe (thick or thin) at 10 points; No. 2 ribbed smoked sheets at 9 points; No. 3 ribbed smoked sheets at 20 points; No. 4 ribbed smoked sheets at 30 points; No. 5 ribbed smoked sheets at 50 points; limit of allowance on No. 2 crepe at 25 points; allowance for rubber delivered in bales at 13 points.

Rubber News Around the World

FOOTWEAR FOR BRITAIN MUST INDICATE ORIGIN

Following an inquiry under the British Merchandise Marks Act, the Standing Committee has just reported its decision for the marking of imported rubber footwear and this is in favor of an importation order as well as a sale order. Their recommendations are as follows:

1. The following descriptions of imported goods shall bear an indication of origin on importation and on sale or exposure for sale, both wholesale and by retail: boots, shoes, and slippers of all kinds made of rubber or with rubber soles, including overshoes with or without heels, and including footholds, but not including canvas rubber-soled footwear where the soles are stitched to the uppers.

2. The indication of origin shall be applied to each boot, shoe or slipper, overshoe or foothold, by means of conspicuous letters in relief impressed prior to vulcanization as follows:

(i) All classes of goods except rubber boots—On the shank or heel or on a rubber label cemented before vulcanization to the shank.

(ii) Rubber boots—(a) On the shank or heel, or near the top of the boot on the outside; or (b) on a rubber label cemented before vulcanization to the shank or near the top of the boot on the outside.

3. Nothing in these recommendations applies to any boot, shoe or slipper where the sole is not vulcanized to the upper.

The committee further recommended that the proposed order shall come into force three months after the date on which it is made or on May 1, 1932, whichever is the later date, and that goods imported before the date of the coming into force of the order may be sold or exposed for sale up to December 31, 1932, without being required to bear an indication of origin.

Russia Collects Old Rubber

Dispatches from Moscow state that the Council of Labor and Defense has undertaken a nationwide campaign to gather up old or scrap rubber. All factories and institutions have been ordered to turn over to the government all such material that they have in their possession and also to institute a campaign among their employes to gather worn-out footwear and other kinds of old rubber.

Carbon Black Exports Gain

In the first nine months of 1931, exports of carbon black from the United States totaled 68,944,298 pounds as against 65,570,895 pounds in the first three quarters of 1930, but the value of the shipments dropped to $3,701,369 from $4,642,529 last year. Zinc oxide exports, on the other hand, were cut in half to 8,734,068 pounds, valued at $613,036 as compared to 17,714,547 pounds, worth $1,186,198, in the same period of 1930. Exports of rubber accelerators, retarders and other compounding agents amounted to 1,685,096 pounds, valued at $904,071, in the nine months ended September 30, with no comparative figures for last year available.

Canadian Suit on "Zipper" Name

Hearings have been opened in the Supreme Court at Montreal on cross appeals by the Canadian Goodrich Company, Ltd., and the Lightning Fastener Company, Ltd., both of which seek sole use of the word "Zipper" as a trade mark to designate a slide controlled fastener or goods equipped with such a fastener. These companies had applied to the Exchequer Court of Canada for the same privilege but were refused and the appeal is from that judgment.

October Golf Ball Imports

Imports of golf balls into the United States during October numbered 44,653, valued at $10,745, the lowest total since January. This compares with imports of 69,008 balls, worth $22,762, in September and with imports of 61,828 balls, worth $20,720, in October, 1930. The average value per ball of October imports was 24.1 cents as compared to 33 cents in September and 34.6 cents in August. All imports were from the United Kingdom, and their value was materially affected by the depreciation of the pound.

Name Tree After Firestone

A new species of tree discovered on the rubber plantation grant of the Firestone Plantations Company, Inc., in Liberia, has been named after Harvey S. Firestone. The Latin name, "Cassipourea Firestoneana," has been given to the species to honor the rubber manufacturer. The wood of the tree is used by natives for canoe paddles.

RUSSIAN RUBBER WORKS WILL OPEN IN FEBRUARY

The majority of the departments of the rubber tire plant at Yaroslavl, Russia, will be completed in February, 1932, lack of building materials and delays in delivering equipment having caused the plant to fall behind its schedule. The cord department is expected to be finished during the fourth quarter of 1931.

The Yaroslavl factory will be the largest of its type in Europe with a capacity of 6,165,000 tires and 23,000 tons of rubber soles a year. It will supply tires for the cars and trucks turned out by the recently completed Nizhni Novgorod automobile plant, which has a capacity of 150,000 cars a year.

ELASTIC FABRIC TRADE DEPRESSED IN FRANCE

The manufacture of elastic fabrics is of considerable importance in France, and centers chiefly in St. Etienne, Romilly-sur-Seine, St. Chamond, Rouen, and in the vicinity of Paris. The president of the Chamber of Commerce of Elastic Fabric Manufacturers, Paris, estimates the annual value of the French production of elastic fabrics at $6,000,000 to $8,000,000. During recent years the industry has made considerable effort to modernize its plants and rationalize its production. An appreciable reduction in the cost price has resulted.

Unfavorable business conditions in 1930 and 1931 affected adversely the local industry and curtailed foreign markets. Reports from the trade indicate that the business of some manufacturers has fallen off 75 per cent, while the average decrease is said to be 50 per cent. In September all factories were reported either working part time or with about 25 per cent of their looms idle. Manufacturers are making considerable effort to create new designs to stimulate demand.

Exports of elastic fabrics from France increased steadily from 1,439 metric quintals (quintal=220.46 pounds) in 1913 to 1,891 in 1928 and to 2,448 in 1929, but in 1930 declined to 2,050 metric quintals. The continued depression in 1931 was evidenced by the drop in exports during the six months ended June 30, 1931, to 872 metric quintals. The principal purchasers of French goods of the type under discussion are Belgium, the United Kingdom, and the United States. Imports of elastic fabrics into France declined from 905 metric quintals in 1913 to 146 in 1928 and 152 in both 1929 and 1930.

TIRE PLANTS COMPLETED IN NORWAY AND SWEDEN

The Askim Gummivarefabrik, Askim, Norway, now has its tire manufacturing equipment in operation on a very small scale, making only bus tires. Taking advantage of the present nationalistic feeling in Norway, this company has made a contract with the Norwegian Bus Owners' Association to supply their tire requirements.

The first factory for the production of the widely publicized Andersen tire has already been built in Sweden and is to supply the Scandinavian market. Advertisements for salesmen to sell the Andersen tire have appeared in the Oslo newspapers, indicating that distribution is to be started in the near future.

Martiny of Italy Expands Line

The Italian firm of Walter Martiny, Turin, has just undertaken the manufacture of all rubber boots and shoes. The company previously manufactured only canvas rubber-soled footwear.

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers.
THE RUBBER AGE
250 West 57th St., New York City

POSITIONS WANTED

RUBBER CHEMIST, graduate chemical engineed, 23 years old, single. Two years' experience in rubber clothing, automotive materials, friction and adhesive tapes. Some experience in artificial leather and fire-proof lacquers. Address Box 626.

COST ACCOUNTANT, experienced in standard and estimated costs on mechanical goods. Have method for control of labor variation. Also familiar with manufacturing methods of mechanical items. Eight years' experience in rubber industry. Address Box 627.

MECHANICAL ENGINEER, 46, twenty-five years' experience with equipment for transmission of power and design special machinery; also has several patented machines to his credit, one in the rubber industry. Highest references. Address Box 628.

FABRIC TECHNICIAN, 15 years' experience in fabric testing, inspection, analysis and development work on tires, mechanicals and accessories. Also factory control work on rubber deposits on fabric, calender stretch, etc. Moderate salary where future offered. Satisfactory references. Address Box 629.

SALES PROMOTION, Advertising and Sales Executive, experience hiring and training salesmen, directing sales promotion and advertising departments, good knowledge conditions in industry, construction, merchandising, etc. Highest references, reasonable ideas on salary, available immediately. Address Box 630, THE RUBBER AGE.

TECHNICAL AND PRACTICAL EXECUTIVE, a victim of the times whose services are on the bargain counter. 15 years' experience. What have you? If I can't handle your proposition and make you money, I will tell you. Address Box 631, THE RUBBER AGE.

MAN, 36 years old, good education and business background, 12 years' experience in manufacturing, merchandising and selling mechanical rubber products, desires connection where diligence and cooperation are required. Address Box 632.

RUBBER TECHNOLOGIST, B.S., age 32, eight years' experience in manufacture of druggist sundries; factory control and development; available immediately. Box 634.

PUBLICITY AND SALES Promotion man or Advertising Manager—Wide experience in rubber and allied industries. Has also carried out considerable market research work. Can take entire charge of department. Expert knowledge of printing and direct mail. Moderate salary or part time on fee basis. Address Box 635, THE RUBBER AGE.

SALESMAN, 38 years old, 10 years' experience calling on the rubber trade, willing to travel. Address Box 637.

POSITIONS WANTED

PURCHASING AGENT, 38 years old, 10 years' experience buying mill supplies. Address Box 638, THE RUBBER AGE.

FABRIC ANALYST—Textile school graduate, 9 years' experience in fabrics. Capable of setting up specifications and developing. Know manufacture and present prices. Able to take charge of inspection department and know reasonable tolerances to allow. Will go anywhere. Address Box 636, THE RUBBER AGE.

ENGINEER—University technical education. Business and management training. 12 years' design, installation, maintenance and construction rubber machinery. 4 years' industrial layouts, costs, safety, employment, development, production and organization work. Executive training and ability. Age 38, married. Any location Address Box 640, THE RUBBER AGE.

FACTORY EXECUTIVE desires connections in Chicago or vicinity. Very broad experience in plant supervision, accounting and manufacture of hose, belting and packings. Can offer potential outlets for molded and other items. References from previous connection and others reveal trade acquaintance. Address Box 641, THE RUBBER AGE.

CREDIT and collection manager, 23 years' experience in rubber industry, desires connection. Has also been office manager, cashier and possesses a good practical knowledge of general accounting. Address Box 642, THE RUBBER AGE.

SEVENTEEN years' experience in tire production, last ten years as Superintendent of plant. Desire proposition to sell and distribute products used by the tire industry, with office in Akron. Address Box 643, THE RUBBER AGE.

Consulting Rubber Technologist

PRACTICAL

Twenty years' experience with the largest and most successful companies in the country

Physical and Chemical Testing
Special facilities for abrasion and quick age tests

Expert Advice to Correct Factory Trouble

New Processes and Formulas Developed

R. R. Olin Laboratories
P. O. Box 372, AKRON, OHIO
Telephones: Sherwood 3724; Franklin 8551

HELP WANTED

TWO COMPOUNDER-CHEMISTS. One experienced with footwear, sheeting, drug sundries, etc. Other with tires and tubes. In reply give age, references, experience, salary, etc. Address Box 639, THE RUBBER AGE.

BUSINESS OPPORTUNITY

British Tariffs

MANAGING DIRECTOR of Rubber Companies with wide experience would negotiate with an up-to-date American concern wishing to erect works in England. Spare land, power and water available, or Solo sites for separate company. Finance for a reputed company would be considered—Would collaborate as English Director and supervisor with American management. Advise class of goods and turnover expected, suggestions re Capital supported by Balance Sheets (strictly confidential). Box L11, W. H. Smith & Son, Ltd., Blackfriars, Manchester, England.

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WE PURCHASE surplus and discontinued stocks of Chemicals, Pigments, Accelerators, Solvents and Raw Materials, regardless of quality or condition. Send us a complete list of such dead stocks, whereupon we will make you a cash offer.

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CASH FOR YOUR SURPLUS AND CLOSE OUT.—Rubber Goods, Chemicals, Colors, Pigments, Oils, Waxes, Glues, Accelerators, Metals. Any quanity. Any condition. Also Wastes, By-Products, Residues of all kinds.

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Rubber Chemist
305 Hoboken Road
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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, DECEMBER 5, 1931

Crude Rubber

DURING the month of November the average of the daily closing prices for spot ribbed smoked sheets at New York established a new low at 4.65 cents a pound. This compares with the previous low of 4.87 cents in October and with 9.01 cents in November, 1930.

In the course of the past fortnight the commodity sank to a new record low closing price of 4⅜ cents a pound, with some sales actually having been made at 4¼ cents. The market maintained this low level during the first three days of the present month, but on December 4 rallied slightly on reports that restriction appeared more likely.

Malayan production and shipments continue to exceed current demand with the result that stocks are mounting further in this and other countries. Trade circles look for no price rise until output and consumption are more nearly balanced.

Prices quoted on the New York outside market at the close December 5 follow:

Plantations—			
Ribbed Smoked Sheets—			
Spot-Dec.		.04⅝@	.04½
January		.04⅝@	.04½
Jan.-Mar.		.04½@	.04⅝
First Latex, crepe spot		— @	.04⅝
Amber Crepe, No. 2		— @	.04⅝
Amber Crepe, No. 3		.04⅛@	.04¼
Amber Crepe, No. 4		— @	.04¼
Brown Crepe, Clean thin		.04¼@	.04⅝
Brown Crepe, rolled		.03¾@	.03⅞
Liquid Latex, per gal.		.70 @	.80
Paras—			
Up-river, fine		— @	.05½
Up-river, coarse		Nominal	
Acre Bolivian, fine		— @	.05¾
Caucho Ball, Upper		.03 @	—
Centrals—			
Central scrap		.04 @	—
Esmeraldas		.04 @	—
Balata—			
Block, Ciudad		— @	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
Spot-Dec.		— @	3d
January		— @	3⅛d
February		— @	2⅞d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot		2⅝@	2¾d

Daily closing prices and sales on the Rubber Exchange of New York are given in the table below:

Reclaimed Rubber

The record low levels for crude rubber continue to hold the price of reclaim down, although export business seems to continue firm. The average value placed on the 671 tons exported in October was 4.53 cents a pound as against an average value of September shipments of 4.41 cents. The questionnaire report of the Rubber Manufacturers Association discloses that the actual domestic consumption of reclaim in the first nine months of 1931 was 106,078 tons. Late prices of the various grades follow:

High Tensile			
Super-Reclaim Black	lb.	.06 @	.06¼
High Tensile Red	lb.	.06¼@	.06½
Shoe			
Unwashed	lb.	.05¼@	.05½
Washed	lb.	.06½@	.06¾
Tube			
No. 1 (Floating)	lb.	.07½@	.08
No. 2 (Compounded)	lb.	.06 @	.06½
Tires			
Black	lb.	.04¾@	.05¼
Black, selected tires	lb.	.05 @	.05¼
Dark Gray	lb.	.06 @	.06¼
Light Gray	lb.	.06¼@	.06½
White	lb.	.07½@	.07¾
Truck, Heavy Gravity	lb.	.06 @	.06¼
Truck, Light Gravity	lb.	.06¼@	.06½
Miscellaneous			
Mechanical blends	lb.	.03¾@	.04¼

Scrap Rubber

The scrap rubber market has continued weak in sympathy with the low level of the crude commodity. Export trade, however, remains strong with 1,566 tons being shipped to foreign ports during October. Late price quotations for the various grades were as follows:

(Prices to Consumer)

Auto tire peelings	ton	19.00	@21.00
Mixed auto	ton	6.00	@ 8.50
Bicycle tires	ton	5.00	@ 6.00
Clean solid truck tires	ton	28.50	@25.00
Boots and shoes	ton	15.00	@17.50
Arctics, untrimmed	ton	10.00	@12.50
Inner tubes, No. 1	lb.	.03¼@	.03⅝
Inner tubes, No. 2, compounded	lb.	.01¾@	.01⅞
Inner Tubes, Red	cwt.	1.40	@ 1.50
Air Brake Hose	ton	9.00	@10.00
Rubber Hose	ton	8.50	@ 9.00

Cotton

DURING the month of November the average of the daily closing prices for spot middling upland cotton at New York was 6.44 cents a pound. This represents a slight advance over the October figure of 6.32 cents and compares with 10.96 cents in November, 1930.

During the past fortnight the daily price has dropped steadily, reaching a bottom of 6.10 cents on the first two days of the present month. It rallied slightly to 6.20 cents on December 3 and closed at 6.15 cents a pound.

High, low and closing prices on the New York Cotton Exchange on December 5 were as follows:

	High	Low Dec. 5	Close	Close Nov. 19
Dec.	6.02	5.96	5.99	6.17
Mar.	6.27	6.18	6.23	6.46
May	6.43	6.37	6.41	6.64

Tire Fabrics

The market for tire fabrics has continued to be weak in sympathy with the low prices for raw cotton. Current quotations for the various grades follow:

(Prices Net at the Mill)

CORD			
Peeler, carded, 23/4/3	lb.	.25½@	.26
Peeler, carded, 23/5/3	lb.	.24½@	.25
Peeler, carded, 13/3/3	lb.	.22 @	.22½
Peeler, carded, 15/3/3	lb.	.22½@	.23
Egyptian, carded, 23/5/3	lb.	.35 @	.36
Egyptian, combed, 23/5/3	lb.	.40 @	.40½
CHAFERS			
Carded, American, 8 oz.	lb.	.23 @	.23½
Carded, American, 10 oz.	lb.	.23 @	.23½
Carded, American, 12 oz.	lb.	.22½@	.23
Carded, American, 14 oz.	lb.	.20½@	.21
LENO BREAKER			
Carded, American, 8¼ oz.	lb.	.20 @	.25
Carded, American, 10¼ oz.	lb.	.20 @	.25
SQUARE WOVEN			
Carded, American, 17¼ oz. 23-11 ply	lb.	.24½@	.25
Carded, American, 17¼ oz. 10-ply	lb.	.20½@	.21

Sheetings

All grades of sheetings declined fractionally in the course of the fortnight. The current price quotations for the more popular sizes follow:

40-inch, 2.50-yard	yd.	— @	.05⅝
40-inch, 2.85-yard	yd.	.05 @	.05⅛
40-inch, 3.15-yard	yd.	— @	.05¾
40-inch, 3.60-yard	yd.	— @	.04⅞
40-inch, 3.75-yard	yd.	— @	.04
40-inch, 4.25-yard	yd.	.03¾@	.03⅞

Ducks

Cotton ducks were inactive in the past two weeks, the price structure remaining as follows:

Belting and Hose	lb.	— @	.20
Enameling	lb.	.20½@	.21½
Single filling	lb.	.08½@	.08¾
Double filling	lb.	.09½@	.09¾

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons

FROM NOVEMBER 20 TO DECEMBER 5, 1931

		Spot	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Sales
Nov.	20	4.53	4.51	4.57	4.64	4.71	4.77	4.82	4.87	4.92	4.97	5.02	5.09	——	108
	21	4.49	4.48	4.53	4.59	4.65	4.71	4.78	4.83	4.88	4.93	4.99	5.08	——	54
	23	4.46	4.45	4.51	4.58	4.65	4.71	4.77	4.82	4.87	4.94	5.02	5.08	——	55
	24	4.50	4.50	4.58	4.66	4.74	4.79	4.85	4.90	4.96	5.02	5.08	5.20	——	49
	25	4.47	4.46	4.53	4.60	4.68	4.73	4.79	4.84	4.90	4.96	5.03	5.12	——	92
	27	4.38	4.37	4.43	4.50	4.56	4.63	4.70	4.74	4.79	4.85	4.92	5.00	——	139
	28	4.37	4.36	4.43	4.50	4.57	4.63	4.67	4.73	4.79	4.85	4.91	5.00	——	24
	30	4.30	4.30	4.36	4.43	4.50	4.56	4.62	4.67	4.72	4.79	4.86	4.95	——	263
Dec.	1	4.29	4.28	4.34	4.41	4.48	4.53	4.58	4.63	4.69	4.76	4.83	4.92	5.02	88
	2	4.29	4.28	4.35	4.42	4.50	4.55	4.60	4.64	4.70	4.76	4.84	4.93	5.03	99
	3	4.30	4.30	4.36	4.43	4.50	4.55	4.60	4.66	4.72	4.78	4.85	4.94	5.04	65
	4	4.44	4.40	4.47	4.54	4.62	4.66	4.71	4.77	4.83	4.89	4.95	5.02	5.12	132
	5	4.42	4.40	4.45	4.52	4.60	4.65	4.70	4.75	4.81	4.88	4.95	5.02	5.12	5

CHEMICALS

RESUMPTION of activity in the tire factories to meet the spring dating demand has resulted in somewhat higher sales of rubber chemicals and compounding ingredients in the last few weeks. The turn of the year is expected to be marked by an even greater increase in production schedules, and many rubber factories are now placing contract business for 1932. The price structure for all types of rubber chemicals has remained steady during the fortnight.

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.		
Aniline oil, drums, f.o.b. works	lb.	.14½@	.16
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	8.25 @	--
Oxynone	lb.	.68 @	.80
Phenex	lb.	.75 @	—
Pipsol	lb.	4.30 @	4.50
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R & H 397	lb.	.75 @	.76
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermio F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.20 @	.22
TMTT	lb.	3.00 @	3.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.06¼@	.07
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)			
Blues			
Prussian	lb.	.35 @	.36
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.56 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Oximony	lb.	.13¼@	—
Red oxide, pure	lb.	.10 @	.12
Smith's 444 Crimson f.o.b. Springfield	lb.	.08¾@	.10
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Venetian red	lb.	.06 @	.06
Vermillion, quicksilver, English	lb.	1.53 @	1.80
Whites			
Lithopone, Akcolith	lb.	.05 3/5@	.06
Lithopone, Albalith	lb.	.05¼@	.05¾
Lithopone, Azolith	lb.	.05¼@	.05¾
Lithopone, Vanolith	lb.	.05¾@	—
Titanium oxide	lb.	.21 @	—
Titanox B, f.o.b. St. Louis,	lb.	.06½@	.07
Titanox C, f.o.b. St. Louis,	lb.	.07 @	.07½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.06½@	.07
ZZ (leaded)	lb.	.06⅞@	.06⅞
Horsehead Brand:			
Special	lb.	.07 @	.07½
XX Green	lb.	.07 @	.07½
XX Red, lead free	lb.	.06½@	.07
Kadox, black label	lb.	.10⅝@	.10⅞
blue label	lb.	.09⅝@	.09⅞
red label	lb.	.08 @	.08½
St. Joe, black label	lb.	.06½@	.07
red label	lb.	.06½@	.07
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.06½@	.07
Anaconda, selected lead free	lb.	.07 @	.07½
White seal	lb.	.11⅝@	.11⅞
Green seal	lb.	.10⅝@	.10⅞
Red seal	lb.	.09⅝@	.09⅞
Yellows			
Chrome	lb.	.16½@	.17
Ocher, French medium	lb.	.02 @	.02
domestic	lb.	.01⅝@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	14.75 @	18.00
Barium carbonate	ton	56.50 @	57.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blacks			
Arrow "Aerofloted"	lb.	.03½@	.03½
Bone Black	lb.	.06 @	.12½
Carbon, compressed	lb.	.03 @	.07
Carbon, uncompressed	lb.	.03 @	.07
Disperso, f.o.b. Louisiana	lb.	.03½@	—
Disperso, f.o.b. Texas	lb.	.036 @	—
Drop Black	lb.	.06 @	.14
Fumonex	lb.	.03½@	.07½
Excello, compressed	lb.	.04 @	.08
Gastex, f.o.b. Texas	lb.	.03 @	.06
Lamp Black	lb.	.10 @	.40
Micronex	lb.	.03½@	.03½
Thermatomic-Thermax	lb.		
Flex	lb.		
P-33	lb.		
United carbon, fob Tex.	lb.	.03½@	.03½
Velvetex carbon	lb.	.03 @	.06
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	8.00 @	20.00
Colloidal	lb.	.05 @	.08
Congaree, c. l. f.o.b. mine	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Mineral Flour, c.l. f.o.b. mine	ton	20.00 @	23.00
Par	ton		
Tensulite		15.00 @	—
Glues, extra white	lb.	.20 @	.25
medium white	lb.	.16 @	.20
Magnesia, carbonate	lb.	.08¾@	.11
Mica, white water grnd.	lb.	.06 @	.08
Off color (biotite)	lb.	.05 @	.07
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	— @	2.57
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.75 @	2.00
Quaker	ton		
Superfine	ton	10.00 @	12.00
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09¼@	.10½
Zinc Stearate	lb.	.18½@	.22

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Paradura	ton	62.50 @	65.00
Parmr, solid	ton	28.00 @	48.00
Pioneer, MR, solid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00
Robertson, MR, solid	ton	34.00 @	80.00
M.R. (gran)	ton	38.00 @	80.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	2.90 @	—
Soda ash, 58% C.L.	cwt.	1.17½@	—
Oils			
Corn, refined, bbls.	lb.	.07 @	.08¾
Cottonseed, crule		— @	.04½
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.04 @	.05
Niger	lb.	.03½@	.04
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.54 @	.61
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.11 @	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt. bbl.		7.00 @	—
Rosin, grade K, 280 lb. bbl.		— @	4.60
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	— @	.10
Alcohol, denatured, No. 1 bbls.	gal.	.28 @	.29
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06¼
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.16½
Gasoline, steel bbls.	gal	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	— @	.37¼
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.26 @	.28
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.80
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refned, 125/127	lb.	.03⅜@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

Aromatics—Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.08 @	.14
White	lb.	.10 @	.16
Brown	lb.	.08 @	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04¼
Sulfur flour, Ref'n'd, 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb		
Vandex	lb.		

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

CONSUMPTION of crude rubber in the United States in the first ten months of 1931 is shown by the Rubber Manufacturers Association three quarterly questionnaires and October monthly estimate to have been 303,316 long tons. Should November and December consumption run 1,300 long tons above the 1930 figures for those months, the year's full absorption would still be only 350,000 long tons. This would compare with the 1930 consumption of 371,120 long tons and the 1929 record absorption of 466,475 long tons.

Stocks on hand in this country will probably rise to unprecedented heights during the next few months owing to the heavy shipments from Malaya and the low rate of absorption by domestic factories. London and Liverpool warehouse stocks dropped sharply in the past month to 129,573 long tons on November 28 as against 133,514 long tons on October 31. London stocks have declined 13,500 long tons from their high figure of last May, but Liverpool stocks are now making new high levels weekly.

Gasoline consumption in October was higher than a year ago, but automobile production sank to a low for the past decade.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,328	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,307	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,773,401	21.61	53,901
Feb.	64,265	24,760,111	17.20	2,955	1,374,783	20.77	61,310
Mar.	50,604	20,380,905	17.98	4,218	2,094,037	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May	51,161	24,355,511	21.25	2,386	1,349,690	21.24	48,325
June	41,663	18,799,307	20.14	3,152	1,470,746	20.83	38,511
July	43,944	19,342,147	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,530,090	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.70	2,011	861,068	19.11	32,461
Oct.	33,163	16,192,261	18.94	2,614	1,190,510	20.33	35,549
Nov.	43,507	18,189,305	18.66	2,929	1,300,354	19.82	40,578
Dec.	42,952	17,573,330	18.27	2,745	1,007,279	16.38	40,207
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.80	40,407
Mar.	44,976	14,653,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,373,232	13.98	3,154	1,085,432	15.37	39,538
June	39,993	12,215,848	13.79	3,174	1,028,653	14.47	36,819
July	35,182	10,553,944	13.39	2,807	759,260	12.08	32,375
Aug.	35,713	9,666,362	12.08	2,357	655,773	12.42	33,356
Sept.	35,380	8,460,812	10.68	1,514	430,772	12.70	33,866
Oct.	46,069	9,893,980	9.59	2,432	419,325	7.70	43,637
Nov.	29,401	5,700,086	8.66	1,300	271,348	9.32	28,101
Dec.	37,800	7,175,242	8.59	2,668	542,197	11.17	35,132
1931:							
Jan.	36,307	7,190,591	8.84	1,706	350,480	9.17	34,601
Feb.	34,005	6,564,969	8.62	1,799	357,078	8.86	32,206
Mar.	40,393	7,356,505	8.13	2,800	534,180	8.52	37,593
Apr.	44,536	7,712,941	7.73	2,607	528,947	9.06	41,929
May	35,526	5,886,638	7.40	2,501	418,301	7.47	33,025
June	46,233	6,918,900	6.68	2,749	440,604	7.15	43,484
July	43,469	6,023,748	6.19	1,435	223,587	6.96	42,034
Aug.	38,669	5,138,404	5.93	2,324	345,953	6.65	36,345
Sept.	38,494	4,970,324	5.76	1,362	187,431	6.14	37,132
Oct.	41,181	4,803,582	5.21	1,527	203,574	5.95	39,604
Nov.							
Dec.							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1924	1925	1926	1927	1928	1929	1930	1931
Jan.	29,058	29,638	32,196	31,518	34,403	43,002	36,194	28,557
Feb.	25,736	29,761	31,136	30,137	33,702	41,594	32,302	28,797
Mar.	28,385	33,498	32,936	36,141	35,688	44,730	35,450	32,788
Apr.	27,129	34,139	32,696	35,871	32,772	47,521	39,686	33,321
May	25,845	35,322	29,364	34,592	37,333	49,233	39,386	37,817
June	22,753	35,822	28,598	33,801	37,676	43,227	34,195	37,916
July	23,396	36,053	27,577	29,219	37,407	41,526	29,508	31,937
Aug.	28,982	35,909	34,533	33,460	42,927	38,274	30,850	27,586
Sept.	31,497	31,691	32,904	27,214	39,882	34,707	25,515	23,638
Oct.	31,520	29,047	29,836	26,790	40,857	34,800	27,516	22,277
Nov.	27,289	28,253	28,080	26,792	37,461	27,659	23,691	.....
Dec.	27,199	28,748	26,293	25,492	31,232	23,531	21,687	.....
Totals	328,769	388,481	366,149	371,027	441,340	469,804	375,980	.....

Figures on Quarterly Basis

Quarter	1924	1925	1926	1927	1928	1929	1930	1931
Jan./Mar.	87,609	95,263	94,301	99,216	103,558	128,565	101,610	89,652
Apr./June	75,674	104,099	87,109	103,242	103,500	139,292	112,229	107,755
July/Sept.	83,813	99,493	93,793	89,210	117,573	113,746	85,261	83,632
Oct./Dec.	92,656	85,789	83,212	80,860	117,597	84,872	72,020	
Totals	339,752	384,644	358,415	372,528	442,227	466,475	371,120	

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1930	1931	MONTHS	1930	1931
January	25,731,000	26,844,000	July	38,256,000	39,459,000
February	26,509,000	26,133,000	August	37,433,000	39,459,000
March	31,029,000	31,037,000	September	37,823,000	36,670,000
April	34,549,000	33,400,000	October	32,267,000	35,051,000
May	36,497,000	35,716,000	November	30,984,000	
June	35,902,000	38,375,000	December	29,094,000	

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1929																																
Aug.	21¾	21	21	—	21	21	20¾	21	—	20⅞	20⅞	—	20⅝	20⅞	20⅝	20⅝	20⅝	20⅝	19⅝	20	20	20⅝	20⅝	20	20⅝	20⅝	20⅝	20⅝	20⅝	20¾	—	20⅝
Sept.	—	—	—	20¾	20¾	19⅞	—	—	20¾	20¾	—	20⅝	20⅝	20¾	20⅝	20⅝	20⅝	20⅝	—	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	20⅝	19⅝	19⅝	19⅝	19⅝	—	20⅝
Oct.	19⅞	19⅞	19⅞	19⅞	—	17	20¾	20⅝	20⅝	—	20⅝	20⅝	—	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	19	19	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	18⅝	18⅝	18⅝	18⅝	19⅝
Nov.	17⅝	17⅝	—	17⅝	17⅝	16¾	16¾	16¾	—	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16¼	16⅝
Dec.	—	16¼	16¼	16¼	16¼	16¼	16¼	—	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16⅝	16¼	16¼	16¼	16¼	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	16¼	16¼	16¼	16¼	16⅛
1930																																
January	—	15¾	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15¼	15⅝
February	—	15¼	—	15⅝	15⅝	15⅝	15⅝	15⅝	—	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15¼	—	15⅝
March	15⅝	—	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝
April	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝
May	14¾	14¾	14¾	14¾	—	14¾	14¾	13⅞	14¾	14¾	14¾	—	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾	14¾
June	—	13¾	13¾	13¾	13¾	—	13¾	13¾	—	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾	13¾
July	12¾	12¾	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
August	10⅝	10⅝	—	10⅝	10⅝	—	10½	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼	10¼
September	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛	8⅛
October	7½	7½	7½	7½	7½	7½	7½	8	8	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞
November	8¾	8¾	—	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾
December	9½	9½	9½	9½	9½	9¾	—	9¾	9¾	9⅝	9⅝	9½	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝	9⅝
1931																																
January	—	8¾	8¾	8½	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¼	8¼	8¼	8¼	8¼	8¼	8	8	8⅝
February	—	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7¾	7½	7½	7½	7½	7½	7½	7¼	—	7¾
March	—	7¾	8	8¼	—	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8	8	8	8	8	8	7	7	7¾
April	6¾	6¾	—	—	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6½	6½	6½	6½	6½	6½	—	—	6¾
May	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
June	6¾	6¾	6¾	6¾	6½	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	—	6¾
July	6¾	6¾	6¾	6¾	—	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾	6¾
August	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾	5¾
September	5¼	5¼	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛	5⅛
October	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾	4¾
November	—	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½
December	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Month	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14	15.24	8.24
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97	15.85	7.70
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55	15.34	7.71
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18	14.93	6.43
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46	14.24	6.49
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64	12.45	6.35
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30	11.24	6.37
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	20.59	9.96	5.38
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37	8.28	5.08
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.83	19.67	8.20	4.87
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	16.62	9.01	4.65
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	16.12	9.05	
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	22.48	20.55	11.98	

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Sept.	Oct.	Nov.	Dec.	Day	Sept.	Oct.	Nov.	Dec.
1	2¼	2¾	—	2⅞	17	2⅝	2⅞	2⅞	—
2	2¼	2⅞	2⅞	2⅞	18	2⅝	—	3	—
3	2¼	2⅞	2¾	2⅞	19	2⅝	3	2⅞	—
4	2¼	—	2¾	3	20	—	3	2⅞	—
5	2¼	2⅞	2⅞	3	21	2⅝	3	2⅞	—
6	—	2⅞	2⅞	—	22	2⅝	3	—	—
7	2¼	3	3	—	23	2⅞	3	2⅞	—
8	2⅜	3	—	—	24	3⅛	2⅞	3	—
9	2⅜	3	3	—	25	3⅛	—	3	—
10	2⅜	2⅞	2⅞	—	26	2⅞	2¾	2⅞	—
11	2½	—	2⅞	—	27	—	2¾	2⅞	—
12	2½	2⅞	2⅞	—	28	2⅞	2⅞	2⅞	—
13	—	3	2⅞	—	29	2¾	2¾	—	—
14	2⅜	2⅞	2⅞	—	30	2¾	2¾	2⅞	—
15	2¼	3	—	—	31	—	2¾	—	—
16	2⅞	3	2⅞	—					

Average Monthly Price Per Pound

Month	1929 Pence	1930 Pence	1931 Pence	Month	1929 Pence	1930 Pence	1931 Pence
Jan.	9.942	7.471	4.160	Aug.	10.505	4.880	2.385
Feb.	11.875	7.948	3.823	Sept.	10.160	4.075	2.524
Mar.	12.135	7.595	3.822	Oct.	9.620	4.023	2.898
Apr.	10.490	7.391	3.082	Nov.	8.442	4.440	2.890
May	10.717	6.926	3.035	Dec.	7.958	4.516	
June	10.580	6.195	3.082	Average			
July	11.065	5.648	3.048	for Year	10.291	5.926	

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Nov.	Dec.	Day of Month	Nov.	Dec.	Day of Monh	Nov.	Dec.
1	—	6.10	11	6.65	—	21	6.10	—
2	6.70	6.10	12	6.60	—	22	—	—
3	—	6.20	13	6.55	—	23	6.10	—
4	6.55	6.15	14	6.45	—	24	6.35	—
5	6.60	6.15	15	—	—	25	6.20	—
6	6.75	—	16	6.40	—	26	—	—
7	6.70	—	17	6.40	—	27	6.15	—
8	—	—	18	6.35	—	28	6.20	—
9	6.85	—	19	6.30	—	29	—	—
10	6.70	—	20	6.20	—	30	6.20	—
						31	—	—

Average Monthly Price Per Pound

	1929 Cents	1930 Cents	1931 Cents		1929 Cents	1930 Cents	1931 Cents
Jan.	20.22	17.21	10.27	Aug.	18.62	12.03	7.21
Feb.	20.21	15.62	10.96	Sept.	18.83	10.85	6.52
Mar.	20.19	15.13	10.90	Oct.	18.46	10.63	6.32
Apr.	20.29	16.39	10.19	Nov.	17.53	10.96	6.44
May	19.41	16.43	9.38	Dec.	17.28	10.02	
June	18.74	14.48	9.05	Average			
July	18.62	13.10	9.28	for Year	19.03	13.57	

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND			AFLOAT			ON HAND AND AFLOAT		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	76,342	131,744	209,487	93,330	61,863	56,187	169,672	193,607	265,674
Feb.	90,058	143,863	212,833	75,790	63,404	63,680	165,848	207,267	276,513
Mar.	100,536	141,843	217,804	67,065	63,646	63,133	167,601	205,489	280,937
Apr.	107,659	148,272	228,382	65,798	63,261	56,700	173,457	211,533	285,082
May	97,192	146,179	220,799	65,793	68,168	73,564	162,985	214,347	294,363
June	92,061	151,561	225,536	54,668	58,657	69,421	146,729	210,209	294,957
July	92,535	152,001	234,822	46,145	58,326	66,873	138,680	210,327	301,695
Aug.	90,769	158,604	240,816	49,423	61,168	61,469	140,192	219,772	302,285
Sept.	84,362	169,927	254,324	58,758	60,923	62,420	143,120	230,851	316,744
Oct.	88,483	185,470	273,456	59,180	51,122	68,427	147,663	236,593	341,883
Nov.	92,219	189,925	.....	62,358	52,538	.....	154,577	242,463	.....
Dec.	118,609	200,998	.....	62,388	56,035	.....	180,997	257,033	.....

(Rubber Manufacturers' Association figures raised to 100%)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1929	1930	1931	At end of	1929	1930	1931
Jan.	25,191	60,434	81,093	July	30,080	81,048	81,317
Feb.	25,554	64,557	82,265	Aug.	35,605	80,931	81,560
Mar.	28,214	68,923	84,736	Sept.	42,128	83,329	79,692
Apr.	31,368	74,676	86,982	Oct.	47,803	77,647	76,722
May	31,290	77,312	86,726	Nov.	52,454	76,887	
June	31,025	80,260	83,071	Dec.	54,304	78,013	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1931					
July	82,170	82,079	81,766	81,104	
August	81,335	81,711	82,171	81,751	81,575
September	81,011	81,011	81,048	80,055	
October	79,246	78,735	78,704	78,465	76,698
November	76,323	75,256	74,322	73,207	

Stocks in Liverpool

1931					
July	54,522	54,444	54,697	54,335	
August	54,881	55,336	54,906	54,722	55,609
September	55,239	54,791	55,024	54,779	
October	54,677	55,518	55,276	55,797	56,816
November	56,284	55,933	56,339	56,366	

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1929	1930	1931	End of	1929	1930	1931
Jan.	29,617	39,727	49,802	July	33,859	45,459	51,203
Feb.	32,378	44,371	49,283	Aug.	30,834	48,132	48,971
Mar.	29,437	45,657	49,590	Sept.	32,138	44,015	47,025
Apr.	26,474	48,478	45,868	Oct.	33,770	39,930	52,132
May	30,764	44,715	44,278	Nov.	30,963	41,674	
June	30,403	42,451	47,517	Dec.	35,548	45,963	

STOCKS IN OTHER CENTRES

1930 End of	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
Oct.	38,587	27,630	2,378	5,600	5,156
Nov.	40,551	24,220	2,405	5,400	4,535
Dec.	40,919	25,980	2,569	5,189	5,132
1931:					
Jan.	41,620	24,500	3,168		5,124
Feb.	43,027	24,580	3,326		5,404
Mar.	40,227	25,800	3,622	3,857	4,843
Apr.	37,103	18,500	3,659		5,137
May	37,171	17,770	3,380		4,896
June	38,748	18,440	3,219	3,518	4,894
July	40,377	19,960	3,111		4,548
Aug.	40,606	18,880	3,204		4,571
Sept.	37,114	19,000	3,293	2,763	4,972

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1927	19,700,003	79.1
1924	21,863,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.8	1929	24,141,502	80.3
1926	24,199,524	78.8	1930	17,364,096	80.1
1931			1931		
January	681,301	67.9	July	812,642	74.0
February	1,010,774	73.9	August	924,236	80.8
March	1,425,336	81.4	September	504,879	70.4
April	1,717,652	79.9	October	281,749	62.7
May	1,508,349	83.7	November	638,138	78.0
June	1,084,707	77.8	December		

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1923	1924	1925	1926	1927	1928	1929	1930
Production	45,259	51,633	60,845	61,237	64,439	77,944	68,726	50,968
Shipments	45,204	50,120	59,262	59,002	64,059	74,296	69,395	53,638
Inventory[2]	5,772	7,427	8,142	10,456	10,264	13,624	11,838	9,008

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	6,301	4,485	3,675	6,211	4,406	3,744	12,855	11,924	8,957
Feb.	6,479	4,555	3,985	4,951	4,195	3,402	14,525	11,410	9,536
Mar.	7,049	4,863	4,663	6,289	4,717	4,122	15,329	12,513	10,014
Apr.	7,391	5,648	4,944	6,838	5,089	4,932	15,870	13,076	10,031
May	7,636	5,717	5,679	6,735	5,216	5,415	16,733	13,432	10,312
June	6,847	5,122	5,672	6,800	5,294	5,572	16,497	13,277	10,447
July	6,320	3,991	4,926	7,364	5,447	5,462	15,034	11,812	9,919
Aug.	5,693	4,166	3,906	7,354	5,175	4,960	13,337	10,848	8,896
Sept.	4,460	3,365	3,172	5,623	4,405	3,932	12,070	9,812	8,158
Oct.	4,611	3,582		4,649	3,499		12,042	9,803	
Nov.	3,878	2,654		3,355	2,884		12,127	9,595	
Dec.	3,057	2,814		3,237	3,361		11,838	9,003	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1923	1924	1925	1926	1927	1928	1929	1930
Production	60,116	70,706	82,614	76,618	70,823	80,180	68,829	52,420
Shipments	59,072	68,106	81,004	71,591	72,896	77,127	70,592	54,938
Inventory[2]	8,425	11,052	11,313	16,200	13,692	16,117	12,807	9,999

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Jan.	6,109	4,607	3,623	6,789	4,857	4,062	14,424	12,704	9,439
Feb.	6,346	4,634	3,916	4,948	4,337	3,400	15,936	13,036	9,921
Mar.	7,000	4,941	4,450	6,317	4,727	3,789	16,641	13,179	10,475
Apr.	7,157	5,510	4,617	6,716	4,848	4,636	17,000	13,784	10,413
May	7,181	5,535	5,413	6,598	5,074	5,281	17,745	13,852	10,549
June	6,542	4,950	5,358	6,515	5,265	5,397	17,294	13,612	10,504
July	5,793	3,939	4,955	7,605	5,855	5,831	15,311	11,657	9,589
Aug.	5,481	4,796	4,435	7,672	5,762	5,301	13,072	10,737	8,774
Sept.	5,190	3,817	3,449	5,859	4,541	4,150	12,585	10,065	8,095
Oct.	5,000	3,951		4,689	3,472		12,802	10,517	
Nov.	3,544	2,680		3,480	2,788		12,845	10,313	
Dec.	3,484	3,060		3,404	3,412		12,807	9,999	

(1) **Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.**

(2) **Held by manufacturers at end of period indicated.**

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,002	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,850	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930							
Jan.	273,089	235,099	37,990	10,388	8,856	1,532	283,477
Feb.	346,940	297,483	49,457	15,548	13,021	2,527	362,488
March	401,378	336,178	64,200	20,730	17,165	3,565	422,108
April	442,630	375,171	67,459	24,257	20,872	3,385	466,887
May	417,154	362,784	54,370	24,672	21,251	3,421	441,826
June	335,475	289,704	45,771	15,090	12,194	2,896	350,565
July	262,363	222,700	39,663	10,188	8,556	1,632	272,551
Aug.	224,368	187,288	35,758	9,792	6,946	2,846	234,160
Sept.	216,877	175,720	41,157	7,957	5,623	2,334	224,834
Oct.	150,044	112,800	37,244	4,541	3,206	1,335	154,585
Nov.	135,752	102,957	32,795	5,407	3,527	1,880	141,159
Dec.	155,701	124,173	31,528	5,622	4,225	1,397	161,323
Total	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931							
Jan.	171,848	138,317	33,531	6,496	4,552	1,944	178,344
Feb.	219,940	180,419	39,521	9,871	7,529	2,342	229,811
Mar.	276,405	231,244	45,161	12,993	10,483	2,510	289,398
Apr.	336,939	285,693	50,015	17,159	14,043	3,116	354,098
May	317,163	269,420	45,695	12,738	10,621	2,117	329,901
June	250,640	208,158	41,304	6,835	5,583	1,252	257,475
July	218,490	183,107	35,854	4,220	3,151	1,069	222,710
Aug.	187,197	155,425	31,772	4,544	3,426	1,118	191,741
Sept.	140,566	109,228	31,338	2,646	2,108	538	143,212
Oct.	80,142	58,415	21,727	1,440	761	679	81,582
Nov.							
Dec.							

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[5]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[3]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,528
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1929:															
Sept.	53,484	12,392	41,092	7,993	884	832	640	406	4,708	7,517	10,149	655	1,566	504	76,446
Oct.	47,937	12,516	35,421	8,381	812	1,047	671	485	4,697	8,295	10,512	893	1,606	445	73,265
Nov.	46,279	11,204	35,075	6,660	1,065	668	672	278	4,760	6,711	9,380	771	1,442	535	68,017
Dec.	46,147	15,018	31,129	8,683	900	930	672	320	5,189	8,279	11,102	966	1,674	443	70,287
1930:															
Jan.	52,535	11,773	40,762	7,741	1,560	791	642	386	5,709	7,831	8,928	856	1,837	585	77,628
Feb.	48,947	12,960	35,987	8,055	1,245	847	642	469	6,900	7,191	11,414	944	1,787	480	75,961
Mar.	47,320	12,236	34,084	6,617	1,129	976	642	391	5,796	6,612	11,214	643	1,674	536	70,314
Apr.	43,803	14,627	29,176	4,444	856	1,026	502	366	4,802	6,326	12,724	433	1,201	630	62,486
May	49,016	13,253	35,763	5,968	975	917	502	350	6,352	6,661	12,041	753	1,383	555	72,220
June	36,607	12,120	24,487	4,577	778	1,040	201	392	4,728	4,776	9,512	425	974	551	52,441
July	41,347	12,759	28,588	3,868	792	1,087	600	327	6,022	5,891	9,770	648	810	418	58,821
Aug.	47,802	10,304	37,498	7,077	600	740	600	335	5,892	7,197	9,520	394	809	382	71,134
Sept.	48,529	8,087	40,442	7,966	343	680	600	289	5,960	6,358	7,302	527	1,093	474	72,034
Oct.	47,770	7,312	40,458	7,681	591	598	650	300	5,916	6,956	6,352	667	669	449	71,287
Nov.	41,281	7,774	33,507	6,042	864	631	600*	311	5,334	6,401	8,001	654	658	238	63,241
Dec.	42,086	9,671	32,415	6,934	1,049	976	600*	335	6,254	7,196	8,476	721	1,365	353	66,674
1931:															
Jan.	41,579	11,029	30,550	7,039	1,315	770	542	424	5,923	7,348	10,328	1,218	994	295	66,746
Feb.	41,951	9,672	32,279	6,365	1,041	945	542	409	4,869	7,206	9,001	1,018	1,271	217	65,163
Mar.	48,589	12,009	36,580	5,881	1,209	930	542	536	5,434	7,104	11,258	1,233	1,338	430	72,477
Apr.	43,353	9,977	33,376	4,333	641	788	455	340	6,473	6,063	8,759	327	629	333	62,517
May	44,281	10,479	33,802	4,534	622	869	455	413	7,372	6,799	10,955	702	1,110	382	68,015
June	39,505	12,115	27,390	5,246	1,086	1,138	455	337	5,856	6,697	11,381	938	621	351	61,496
July	43,658	11,995	31,663	4,212	715	801	500*	316	6,671	7,510	10,711	841	1,565	186	65,691
Aug.	42,832	9,063	33,769	3,764	406	692	500*	210	6,397	7,044	8,641	983	856	241	63,503
Sept.	44,336	8,369	35,967	4,202		701	500*	218	5,667	7,476	8,524	922	745	170	

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,808
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,899
1921	179,786	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,620
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,012
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,203
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,881	12,018	9,490	6,482	636	4,224	2,055	2,672	632,808
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,483	15,184	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,015
1930	458,036	119,437	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	821,813
1929:															
Sept.	32,912	17,010	3,889	4,691	1,908	3,511	1,224	1,235	853	672	253	361	91	477	68,453
Oct.	36,040	16,111	4,489	3,355	1,821	3,902	1,838	1,073	1,125	1,147	278	710	91	201	72,181
Nov.	41,097	13,141	3,082	3,776	2,709	3,221	1,275	1,226	1,453	361	253	595	62	313	72,564
Dec.	40,588	12,434	4,274	2,921	2,114	2,251	1,198	1,200	726	741	52	677	90	443	69,709
1930:															
Jan.	44,911	11,106	4,207	3,862	2,842	2,805	910	826	332	612	209	552	200*	577	73,949
Feb.	40,792	10,293	4,482	3,697	2,250	1,386	1,385	2,705	457	1,143	188	315	200*	239	69,533
Mar.	42,216	12,346	4,354	4,289	3,776	2,663	1,083	1,153	975	678	358	322	200*	263	74,676
Apr.	43,036	13,058	5,006	4,488	2,303	2,769	2,067	929	673	1,431	158	461	200*	255	76,790
May	40,012	9,861	5,233	4,379	2,593	2,699	1,279	1,645	64	1,250	230	274	200*	282	65,620
June	37,374	9,645	4,458	3,794	2,579	2,677	1,378	1,574	67	691	343	507	200*	282	65,620
July	32,785	7,650	3,311	3,449	3,347	1,206	587	567	84	939	172	756	200*	342	55,395
Aug.	34,513	8,369	3,953	3,515	2,103	2,170	886	149	265	888	37	747	200*	450	58,250
Sept.	34,373	16,015	5,285	4,089	1,578	2,606	1,279	1,373	414	824	221	817	200*	411	69,481
Oct.	44,385	9,095	7,403	3,747	1,942	3,951	2,460	2,782	609	769	439	1,132	200*	351	79,264
Nov.	28,437	—250	13,662	3,074	2,128	4,003	2,510	2,140	464	596	364	1,180	200*	343	58,851
Dec.	35,202	12,249	7,149	3,105	1,347	4,104	2,815	544	950	814	205	647	200*	673	70,004
1931:															
Jan.	34,892	9,730	5,954	3,847	1,709	2,861	1,036	1,775	601	986	348	464	240	635	65,015
Feb.	32,575	12,226	4,510	3,374	1,927	3,264	1,393	1,022	495	785	157	475	201	366	62,770
Mar.	37,988	12,335	4,386	3,545	3,012	2,323	418	2,372	435	862	346	400	392	507	69,321
Apr.	43,036	9,440	4,346	3,054	2,070	3,478	528	1,450	457	515	383	495	208	324	69,734
May	33,343	7,212	2,880	3,231	2,748	3,755	1,023	1,034	884	1,153	86	495	180	711	58,735
June	44,190	5,636	4,002	3,504	2,112	2,988	1,462	3,279	1,112	1,058	272	577	207	607	71,006
July	44,052	5,366	3,301	3,226	2,592	3,065	809	3,141	627	1,507	41	429	145	1,074	69,375
Aug.	36,709	5,030	3,393	2,889	2,304	3,780	812	3,137	283	965	—57	321	160	413	60,129
Sept.	37,570	5,468	4,420		1,535				334				99		

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics	Rubber Heels	Rubber Soles	Mechanical Goods Shipments
	Yards	Pairs	Pairs	Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,179,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1930	42,681,000	178,059,000	29,514,000	58,465,000
1930:				
October	5,209,000	16,460,000	3,056,000	4,186,000
November	2,822,000	11,083,000	1,426,000	3,400,000
December	1,909,000	13,101,000	3,021,000	3,338,000
1931:				
January	2,206,000	12,973,000	2,481,000	3,599,000
February	2,184,000	13,156,000	2,724,000	3,711,000
March	2,769,000	14,661,000	2,292,000	4,412,000
April	3,381,000	15,408,000	2,692,000	4,617,000
May	3,050,000	15,474,000	2,885,000	4,231,000
June	3,212,000	17,093,000	3,177,000	3,879,000
July	3,337,000	15,361,000	2,864,000	3,706,000
August	3,787,000	16,293,000	2,933,000	3,856,000
September		15,827,000	2,880,000	

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Liquid Latex (1)	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	3,332	2,213,964	—	—
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	—	—
1921	58	26,945	814	1,077,859	1,745	351,893	—	—
1922	127	57,040	812	978,765	2,335	403,812	—	—
1923	1,155	542,227	700	898,524	4,565	853,308	—	—
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	864,059
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	781	480,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	347,388	501	422,684	5,907	1,403,244	4,449	1,506,804
1930:								
Nov.	—	—	73	61,650	389	84,219	332	65,265
Dec.	—	—	90	66,198	429	116,644	70	20,481
1931:								
Jan.	—	—	46	31,870	355	58,897	291	70,708
Feb.	—	—	17	13,801	511	114,100	369	89,470
Mar.	—	—	66	23,568	625	127,803	395	75,285
Apr.	—	—	219	69,284	676	140,309	372	73,867
May	—	—	120	44,025	205	36,086	318	82,202
June	—	—	245	79,786	681	123,616	706	129,496
July	—	—	67	20,777	331	64,493	583	104,868
Aug.	—	—	73	30,207	652	100,536	364	60,358
Sept.	—	—	126	35,174	407	65,232	439	72,443
Oct.	—	—	100	13,846	415	75,219	267	43,238

(1) Latex import figures not available before 1924.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

Year	Production	Consumption Tons	% to Crude	Stocks*	Year	Production	Consumption Tons	% to Crude	Stocks*
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,834	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	218,954	226,588	48.4	27,464
1925	132,930	137,105	35.6	18,203	1930	157,967	153,497	40.8	22,000
1929:									
Jan.	18,695	21,068	49.1	24,394	July	18,387	20,286	48.7	19,679
Feb.	18,094	19,829	47.7	23,305	Aug.	19,787	18,230	47.6	22,309
Mar.	19,984	20,867	46.7	22,076	Sept.	18,660	17,071	49.2	24,984
Apr.	19,899	22,435	47.3	20,680	Oct.	18,865	18,744	53.8	25,117
May	20,385	23,176	47.1	19,479	Nov.	14,363	15,330	55.4	26,080
June	18,416	18,141	42.0	17,980	Dec.	13,429	11,531	49.0	27,464
1930:									
Jan.	15,010	17,454	47.6	24,241	July	12,322	12,384	42.8	23,873
Feb.	15,846	14,559	44.5	24,243	Aug.	12,047	10,985	35.9	22,980
Mar.	17,400	15,241	42.2	24,415	Sept.	11,433	10,480	41.4	21,998
Apr.	17,828	16,904	42.0	24,587	Oct.	12,349	10,724	39.3	21,145
May	17,812	17,082	42.7	23,356	Nov.	10,763	8,816	37.5	24,007
June	15,714	14,063	40.8	24,449	Dec.	10,073	8,449	39.3	24,008
1931:									
Jan.	10,349	10,728	37.6	22,429	July	11,393	11,447	35.8	17,720
Feb.	10,871	10,800	37.5	18,878	Aug.	10,110	9,972	36.2	17,165
Mar.	12,938	12,524	38.3	18,375	Sept.	9,629	8,932	37.6	17,226
Apr.	13,267	11,745	35.0	18,356	Oct.	9,482	8,126	36.6	17,741
May	13,478	13,103	34.6	18,088	Nov.	.....	.....	.....	.....
June	14,066	13,045	34.4	18,505	Dec.	.....	.....	.....	.....

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,369 tons in 1929.
(Rubber Manufacturers' Association figures raised to 100%)

REVIEW DESK

Books, New Publications, Catalogues, Etc.

SYMPOSIUM ON ABRASION TESTING OF RUBBER. By Harlan A. Depew et al. Published by the American Society for Testing Materials, 1315 Spruce Street, Philadelphia, Pa. 1931. 64 pp. $0.50.

In addition to the five papers presented at this symposium in Chicago last June, this reprint pamphlet contains the full discussion that ensued at that meeting. Abstracts of the papers were published on Page 215 of the June 10, 1931, issue of THE RUBBER AGE.

FACTS BEHIND THE QUALITY FOUND IN LEE OF CONSHOHOCKEN TIRES. By A. H. Nellen. Published by the Lee Tire & Rubber Company, Conshohocken, Pa. 1931. 16 pp. For free distribution.

As a popular presentation of work done in the testing laboratories to assure tire performance, this bulletin serves a useful purpose. Mr. Nellen, chief chemist of the Lee organization, has presented his facts in a manner that will be easily understood by tire dealers or the general public.

THE CONSULTING CHEMIST AND YOUR BUSINESS. Published by Foster D. Snell, Inc., 130 Clinton Street, Brooklyn, N. Y. 1931. 15 pp. For free distribution.

The nature of the services rendered by the consulting chemist is the subject of this pamphlet, together with a detailed description of the facilities offered by the organization which is the publisher.

COLLOID CHEMISTRY. Vol. III. Edited by Jerome Alexander. Published by the Chemical Catalog Company, 419 Fourth Avenue, New York City. 1931. 655 pp. $10.50.

The first two volumes of this series dealt with theory and methods and with biology and medicine, respectively, and it is the intention of the last two to describe technological applications. The present volume contains 42 papers on general principles, mechanical or more specialized matters, and on applications relating to geology, mineralogy, metals, petroleum and agriculture. Of particular interest to rubber technologists is the paper by Dr. P. P. von Weimarn on the "Rubber-Like and Liquid-Crystalline States of Matter, in Connection with the Classification of Crystals and Molecules According to Their Vectoral Fields." Professor George L. Clark also treats briefly on rubber in his paper on X-ray researches on colloids. The fourth volume of this series, which is soon to be published, will devote more space to work with rubber and other plastics.

WITH THE AIR FLEET. Published by the Goodyear-Zeppelin Corporation, Akron, O. 1931. 12 pp. For free distribution.

More than 63,000 passengers have been carried in the fleet of six non-rigid airships operated by the Goodyear Tire & Rubber Company and its subsidiary, the Goodyear-Zeppelin Corporation, as a part of the general program of familiarizing the public with the lighter-than-air division of aeronautics. A review of the operations of this fleet is contained in this booklet, which is now in its sixth edition.

CARBON TETRACHLORIDE: PROPERTIES AND USES. Published by the Roessler & Hasslacher Chemical Company, 350 Fifth Avenue, New York City. 1931. 28 pp. For free distribution.

In this booklet has been compiled all available information on the properties, specifications and commercial application of the non-inflammable solvent, carbon tetrachloride. There are important sections on toxicity, stability, flash point data, flammable solvent mixtures, test methods, etc. The non-flammability of the solvent is said to be especially advantageous in removing fire hazards in rubber cement processes.

BROWN ELECTRIC FLOW METERS. Published by the Brown Instrument Company, Wayne and Roberts Avenues, Philadelphia, Pa. 1931. 56 pp. For free distribution.

Flow meters are today among the most valuable of modern industrial instruments. In this catalog are featured the latest developments in this line of electric flow meters operating on the inductance bridge principle. One of these new developments is the low range manometer and another the high pressure flow meter manometer.

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1932

THERE can be no regrets at the passing of 1931. It has been a year of grief and uncertainty for the world in general and for the rubber industry in particular. But some consolation can be drawn from the fact that the industry has carried on despite the depression and the general discouraging conditions surrounding the world's economic situation. The psychology of optimism can do a lot to defeat bad times and this is the traditional season for optimism, with the coming of a new year and the expectancy of what good things it holds. THE RUBBER AGE wants to reflect this optimism in wishing its readers and friends

A Very
Prosperous
New Year

Retrospect—

IT is a gloomy moment in history. Not for many years—not in the lifetime of most men who read this paper—has there been so much grave and deep apprehension. In our own country there is universal commercial prostration, and thousands of our poorest fellow-citizens are turned out against the approaching Winter without employment.

"In France the political caldron seethes and bubbles with uncertainty. Russia hangs like a cloud dark and silent upon the horizon of Europe; while all the energies, resources and influences of the British Empire are sorely tried, and are yet to be tried more sorely, in coping with the vast and deadly Indian situation, and with disturbed relations in China.

"Of our own troubles no man can see the end. If we are only to lose money, and thus by painful poverty to be taught wisdom, no man need seriously despair. Yet the very haste to be rich, which is the occasion of this widespread calamity, has also tended to destroy the moral forces with which we are to resist and subdue the calamity."

Reprinted from *Harper's Weekly*.
October 10, 1857.

As Good Times Followed Gloomy 1857
So May Prosperity Come to You in the New Year

U. S. RUBBER RECLAIMING CO., Inc.

230 Park Ave. :: New York

To Our Customers

We Extend
The Season's Greetings

The cooperation and confidence accorded our Company during the year nineteen hundred and thirty-one is fully appreciated.

We pledge ourselves to exert every effort during the coming year to merit a continuance of these good relations by persistent research work on new materials for use in the manufacture of rubber goods.

The Naugatuck Chemical Company

1790 Broadway, New York City